

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a major, industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq. The discharges result from the generation of electricity (station capacity of 1750 megawatts) using steam produced by the combustion of coal and other fossil fuels. This permit action proposes to establish effluent limitations and monitoring and reporting requirements on the discharges from the station. The owner proposes to construct a Low Volume Wastewater Treatment System (LVWWTs) to address changes to the coal combustion residuals management system in response to the Disposal of Coal Combustion Residuals from Electric Utilities final rule signed April 17, 2015. Internal Outfalls 301, 302, 303, and 304 have been added as part of the LVWWTs. Internal Outfall 104 has been renamed to Outfall 401 and Internal Outfall 402 has been added. Outfalls 006-011 have been removed. Special conditions are updated to reflect current agency policy and site activities.

1. Facility Name and Address: Dominion Chesterfield Power Station
5000 Dominion Boulevard
Glen Allen, Virginia 23060

Location: 500 Coxendale Road
Chester, Virginia 23831
See **Attachment 1** for location and site maps.
2. SIC Code: 4911 – Electric Services
3. Permit No. VA0004146 Existing Permit Expiration Date: December 9, 2009
This permit has been administratively continued.
4. Owner: Virginia Electric and Power Company
Owner Contact: Cathy C. Taylor
Director, Environmental Support
Telephone: 804/273-2929
E-mail: Cathy.C.Taylor@dom.com

Facility Contact: Kenneth Roller
Senior Environmental Specialist
Telephone: (804) 273-3494
E-mail: Kenneth.Roller@dom.com
5. Application Complete Date: The initial application was complete on June 2, 2009. Additional material was submitted to supplement the application on July 8, 2009, October 8, 2009, July 21, 2015, October 19, 2015, November 19, 2015, February 12, 2016, March 7, 2016, and May 9, 2016.

Permit Drafted By:	Emilee Adamson	Date:	August 30, 2012 (initial draft)
	Brian Wrenn	Date:	October 27, 2015
	Joseph Bryan	Date:	May 13, 2016
Reviewed By:	Ray Jenkins	Date:	October 5, 2012
	Emilee Adamson	Date:	November 8, 2015
			May 27, 2016
	Curtis J. Linderman	Date:	February 4, 2013
			February 12, 2013
			February 24, 2016
			May 19, 2016
	Kyle Winter	Date:	February 25, 2013
			November 23, 2015
			February 17, 2016
			May 17, 2016

Public Comment Period Dates: From: May 2, 2014 To: June 2, 2014

From: XX XX, XXX To: XX XX, XXX

6. Receiving Stream:

OUTFALLS	001*	101	002*	201	003	301	302	303	304	305	004*	401	402	005*
Receiving Stream	James River, Main Channel	Internal Discharge to OF001	James River, Main Channel	Internal Discharge to OF002	James River (Farrar Gut)	Internal Discharge to OF 003	Internal Discharge to OF301	Internal Discharge to OF 301	Internal Discharge to OF301	Internal Discharge to OF301	James River (Farrar Gut)	Internal Discharge to OF 004	Internal Discharge to OF 004	James River (Farrar Gut)
Lat/Lon	N 37°22'58" W 77°22'51"	TBD	N 37°22'58" W 77°22'48"	TBD	N 37°22'19" W 77°23'4"	N 37°22'71" W 77°23'02"	N 37°22'58" W 77°23'10"	N 37°22'35" W 77°23'04"	TBD	TBD	N 37°22'18" W 77°22'54"	N 37°22'35" W 77°23'04"	N 37°22'58" W 77°23'09"	N 37°22'20" W 77°21'50"
Basin	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)	James River (Lower)
Subbasin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Section	1	NA	1	NA	1	NA	NA	NA	NA	NA	1	NA	NA	1
Class	II	NA	II	NA	II	NA	NA	NA	NA	NA	II	NA	NA	II
Special Standards	bb	NA	bb	NA	bb	NA	NA	NA	NA	NA	bb	NA	NA	bb
River Mile	2- JMS097.70	NA	2- JMS097.70	NA	2- JMC003.77	NA	NA	NA	NA	NA	2- JMC003.75	NA	NA	2- JMC000.37
Low Flow 1Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
Low Flow 7Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
Low Flow 30Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
Low Flow 30Q5 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
High Flow 1Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
High Flow 7Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL

OUTFALLS	001*	101	002*	201	003	301	302	303	304	305	004*	401	402	005*
High Flow 30Q10 (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
HM (MGD)*	TIDAL	NA	TIDAL	NA	0	NA	NA	NA	NA	NA	0	NA	NA	TIDAL
Tidal	Yes	NA	Yes	NA	Yes	NA	NA	NA	NA	NA	Yes	Yes	Yes	Yes
303(d) list**	Category 5D	NA	Category 5D	NA	Category 4A	NA	NA	NA	NA	NA	Category 4A	Category 4A	Category 4A	Category 4A

*The James River is tidally influenced at the discharge points. Flow frequencies cannot be determined for tidal waters; therefore, conservative tidal dilution ratios are used. Historically the standard tidal default dilution ratios (2:1 acute, 50:1 chronic) were used; however, in recognition of the discharge flow rates and the tidal influence at the discharge location, conservative dilution ratios of (2:1 acute, 2:1 chronic) are used to evaluate Outfalls 001 and 002. Farrar Gut is also tidal; however, the gut is dominated by the discharge from the facility's Outfall 003. Outfalls 003 and 004 discharge at the head of Farrar Gut where tidal influence is minimal; therefore, these outfalls are evaluated without dilution. At Outfall 005, which is near the mouth of Farrar Gut, conservative tidal dilution ratios of 2:1 acute and 2:1 chronic are used to evaluate the discharge.

** Category 5D means the Water Quality Standard is not attained where Total Maximum Daily Loads (TMDLs) for a pollutant(s) have been developed but one or more pollutants are still causing impairment requiring additional TMDL development. Category 4A means the water is impaired or threatened for one or more designated uses but does not require a TMDL because the TMDL for specific pollutant(s) is complete and US Environmental Protection Agency (EPA) approved.

See **Attachment 2**.

7. **Operator License Requirements:** The Virginia Department of Professional and Occupational Regulation requires licensed operators for wastewater works. A wastewater works using advanced treatment methods, including chemical precipitation and coagulation having a design hydraulic capacity greater than 0.5 MGD but equal to or less than 5.0 MGD requires a Class 2 licensed operator (18VAC160-20-130.C & 9VAC25-31-200.C). Based on the metals pond and the Flue Gas Desulfurization (FGD) Waste Water Treatment Plant (WWTP), a Class 2 operator is required for this facility.
8. **Reliability Class:** Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Class II for sewage pumping facilities to the County sewerage system.

9. **Permit Characterization:**

- | | |
|--|--|
| <input type="checkbox"/> Issuance | <input checked="" type="checkbox"/> Existing Discharges |
| <input checked="" type="checkbox"/> Reissuance | <input checked="" type="checkbox"/> Proposed Discharge |
| <input type="checkbox"/> Revoke & Reissue | <input checked="" type="checkbox"/> Effluent Limited |
| <input type="checkbox"/> Owner Modification | <input checked="" type="checkbox"/> Water Quality Limited |
| <input type="checkbox"/> Board Modification | <input checked="" type="checkbox"/> WET Limit |
| <input type="checkbox"/> Change of Ownership/Name | <input checked="" type="checkbox"/> Interim Limits in Permit |
| Effective Date: | <input type="checkbox"/> Interim Limits in Other Document (attached) |
| <input type="checkbox"/> Municipal | <input checked="" type="checkbox"/> Compliance Schedule Required |
| SIC Code(s): | <input type="checkbox"/> Site Specific WQ Criteria |
| <input checked="" type="checkbox"/> Industrial | <input checked="" type="checkbox"/> Variance to WQ Standards |
| SIC Code(s): 4911 | <input type="checkbox"/> Water Effects Ratio |
| <input type="checkbox"/> POTW | <input checked="" type="checkbox"/> Discharge to 303(d) Listed Segment |
| <input type="checkbox"/> PVOTW | <input checked="" type="checkbox"/> Toxics Management Program Required |
| <input checked="" type="checkbox"/> Private | <input type="checkbox"/> Toxics Reduction Evaluation |
| <input type="checkbox"/> Federal | <input type="checkbox"/> Pretreatment Program Required |
| <input type="checkbox"/> State | <input type="checkbox"/> Storm Water Management Plan |
| <input type="checkbox"/> Publicly-Owned Industrial | <input type="checkbox"/> Possible Interstate Effect |

10. **Wastewater Flow and Treatment:** This facility produces electricity using steam produced by the combustion of coal (primary fuel for Units 3, 4, 5, and 6), natural gas (primary fuel for Units 7 and 8), or distillate fuel oil (auxiliary fuel for all units). The station capacity is rated at 1750 megawatts.

On July 21, 2015, Virginia Electric Power Company submitted an application addendum including a preliminary Concept Engineering Report, describing planned changes to the facility. The changes will occur to meet the requirements of the Disposal of Coal Combustion Residuals (CCRs) from Electric Utilities final rule signed April 17, 2015. In response to the rule, the facility will convert from a wet ash management system to a dry ash management system in the third quarter of 2017. Once the conversion is complete, CCRs will be disposed of in the Fossil Fuel Combustion Product (FFCP) Management Facility, an industrial landfill that will be located at the Chesterfield Power Station. Use of the FFCP Management Facility will allow Virginia Power to close the two existing ash ponds, the Lower Ash Pond (LAP) and the Upper Ash Pond (UAP). Currently, the LAP receives wet sluiced ash and wastewater from various sources at the facility. The wastewater sources are listed below in the Wastewater Summary Table and described in detail in Attachment 2. Of special note are wastewaters from the Metals Pond and the Flue Gas Desulfurization Wastewater Treatment Plant (FGD WWTP) which are monitored at internal outfalls 401 and 402, respectively. The wet ash is dewatered and transported to the UAP for final disposal. The free standing wastewater in the LAP is discharged through Outfall 004. Prior to the conversion, a Low Volume Wastewater Treatment System (LVWWTS) will be constructed to treat the wastewater currently routed to the LAP. The LVWWTS will discharge through an internal outfall (301) with a diffuser to the thermal discharge channel for Outfall 003. Internal outfalls for the FGD WWTP and the Metals Pond will be maintained and renamed to Internal Outfalls 302 and 303, respectively. Two new internal outfalls, Outfalls 304 and 305, will also discharge to Outfall 301. These outfalls will discharge leachate from the FFCP Management Facility and Coal Pile Runoff, respectively. Once the conversion is complete and the LVWWTS is receiving and treating wastewater, the LAP and the UAP will be closed in accordance with the CCR rule via a Solid Waste permit. During

drawdown and dewatering of the LAP and UAP the wastewater will be discharged through either internal Outfall 101 or 201, which discharge through Outfalls 001 and 002, respectively. The permittee estimates that 280 million gallons of wastewater will be pumped/dewatered from the LAP over a three month period. The UAP will be pumped out and dewatered over a one month period discharging a total of approximately 3.5 million gallons. All discharge flows during closure activities will be treated prior to discharge. A concept engineering report for the treatment process must be submitted and approved prior to construction.

See **Attachment 3** for a description of the waste streams, a schematic of wastewater flows and treatment, and diffuser details.

Wastewater Summary:

Outfall Number	Wastewater Source	Treatment	Flow, MGD (maximum of 30-day averages)
001	Cooling Water from Units 7 and 8	Dechlorination	212
101	Discharge from Centralized Source Water Treatment Facility – will receive effluent from the LAP and UAP during closure activities	TBD (CER to be submitted prior to commencement of treatment construction)	5.0
002	Cooling Water from Unit 3	Dechlorination	89
201	Discharge from Centralized Source Water Treatment Facility – will receive effluent from the LAP and UAP during closure activities	TBD (CER to be submitted prior to commencement of treatment construction)	5.0
003	Cooling Water from Units 4, 5, and 6	Dechlorination	753
301	Discharge from Low Volume Wastewater Treatment System (LVWWTS) – will receive coal pile retention basin discharge, master sump effluent, FGD yard sump effluent, bottom ash handling area runoff, sierra ditch stormwater runoff, upper ash pond (UAP) toe drain discharge, lower ash pond (LAP) toe drain discharge, leachate and contact stormwater from Fossil Fuel Combustion Product (FFCP) Management Facility, Discharge from Internal Outfalls 302 and 303 (see discussions for Internal Outfalls 302 and 303 below)	Sedimentation, oil and grease removal, and neutralization at a minimum. CER to be submitted during permit term.	6.0*
302	FGD wastewater, and Combustion Residual Leachate (if redirected to this outfall)	Wastewater equalization, pH elevation, gypsum desaturation, heavy metal precipitation, coagulation, flocculation, clarification, pH	0.11

		adjustment, and sludge dewatering. Wastewater treatment is achieved through chemical addition. Upgrade to meet new FEGs anticipated. CER will be submitted prior to construction. See Attachment 3.	
303	Metals Cleaning Wastewater	Lime addition, mixing, and chemical precipitation	2.7
304	Leachate from the FFCP Management Facility	TBD (CER to be submitted prior to commencement of treatment construction)	0.19**
305	Coal Pile Runoff	Settling and metals treatment (CER to be submitted during permit term)	2.4***
004	Discharge from LAP – receives ash sluice water and wastewater from sumps throughout the station (low volume wastes, non-chemical cleaning wastes, screen backwash associated with reuse of Proctor's Creek WWTP effluent, wastewater from the station's car wash (non-chemical), storm water from the Unit 6 FGD runoff collection system, coal pile runoff, Water Treatment Plant wastewater, a portion of Drainage Area 4 and various other onsite tank containment areas including the station's light oil storage tank. Outfall 004 also receives the treated discharge from the metals treatment pond and the treated discharge from the FGD WWTP.	Settling, skimming. Some of the sources to the LAP receive treatment prior to discharge to the ash pond. There is also occasional chemical coagulation and pH adjustment as needed. See Attachment 3.	17.47
401	Metal cleaning wastewater	See Internal Outfall 303 above.	2.7
402	FGD wastewater	See Internal Outfall 302 above.	0.11
005	Storm water runoff from coal ash pond closure and recovery wells/toe drains.	Settling, skimming	4.05 (Max of 30 day maximum)

* This is the maximum flow estimated for the LVWWTS discharge at internal outfall 301.

** This is the maximum flow estimated for the FFCP Management Facility discharge at internal outfall 304.

*** This is the maximum flow estimated for the Coal Pile Runoff discharge at internal outfall 305.

11. Sewage Sludge Use or Disposal: No sewage sludge is generated on site. Sanitary wastewater is discharged into Chesterfield County's sewerage system.
12. Material Storage:
No. 2 fuel oil is stored in an 11.256 million gallon tank which has a steel containment wall. Used oil is stored in a 5,000 gallon tank, also with dike. Diesel fuel is stored in a 12,300 gallon tank at the coal yard for equipment use. Drainage from these areas eventually reaches the LAP (Outfall 004). Water treatment chemicals are stored in their shipping containers in an area that drains to the master sump, which discharges to the LAP. Sodium hypochlorite is used for chlorination of the cooling water system and sodium bisulfite is used for dechlorination. All of the runoff from the coal yard discharges to the LAP. A list of all chemicals used on site is included in **Attachment 3**.
13. Ambient Water Quality Information: See **Attachment 2** for ambient monitoring data from 2-JMS099.30 and a location map. This information was used in pollutant analyses for all outfalls as representative of pH and hardness. 2-JMS099.30 is located at Buoy 157 on the James River approximately 4 miles upstream of Farrar Gut. The data from this station represent background ambient conditions before interaction with the heated effluent from the facility.

During the 2012 and draft 2014 305(b)/303(d) Water Quality Integrated Reports, the James River was assessed as a Category 5D waterbody ("The Water Quality Standard is not attained where TMDLs for a pollutant(s) have been developed but one or more pollutants are still causing impairment requiring additional TMDL development."). Farrar Gut was considered a Category 4A water ("Impaired or threatened for one or more designated uses but does not require a TMDL because the TMDL for specific pollutant(s) is complete and US EPA approved."). See **Attachment 2** for the applicable fact sheets.

The Recreation Use in the James River is impaired due to *E. coli* violations. The James River and Tributaries City of Richmond Bacterial TMDL was approved by the EPA on November 4, 2010. The power station was included in the TMDL; however, the facility was not assigned a bacteria wasteload allocation because it is not a source of the pollutant. There was insufficient information to assess the Recreation Use in Farrar Gut; however *E. coli* was considered a non-impairing observed effect.

The Fish Consumption Use in the James River is impaired due to a VDH Fish Consumption Advisory for PCBs. All outfalls were analyzed for PCBs and no observed concentrations were reported. The permittee has not performed the voluntary low level PCB monitoring (method 1668) for the pending TMDL development. As the data currently indicated that PCBs are not present in the discharge and Part I.C.9 of the permit prohibits the discharge of PCBs, this permit should neither cause nor contribute to the impairment. The Fish Consumption Use in Farrar Gut is considered fully supporting with observed effects due to the kepone advisory.

The Aquatic Life Use in the James River and Farrar Gut are impaired due to exceedance of the chlorophyll a standard, altered benthic community, and inadequate submerged aquatic vegetation (SAV) in the upper James River tidal freshwater estuary. This facility discharges directly to the James River and to Farrar Gut in the Chesapeake Bay watershed. The receiving streams have been addressed in the Chesapeake Bay TMDL, approved by EPA on December 29, 2010. The TMDL addresses dissolved oxygen (DO), chlorophyll a, and submerged aquatic vegetation (SAV) impairments in the main stem Chesapeake Bay and its tidal tributaries by establishing non-point source load allocations (LAs) and point-source waste load allocations (WLAs) for Total Nitrogen (TN), Total Phosphorus (TP) and Total Suspended Solids (TSS) to meet applicable Virginia Water Quality Standards contained in 9VAC25-260-185. This facility is considered a Significant Chesapeake Bay wastewater discharge. All Significant Chesapeake Bay wastewater discharges have been assigned aggregate WLAs of 5,014,234 pounds per year TN, 496,712 pounds per year TP, and 67,321,434 pounds per year TSS.

Implementation of the Chesapeake Bay TMDL is currently accomplished in accordance with the Commonwealth of Virginia's Phase I Watershed Implementation Plan (WIP), approved by EPA on December 29, 2010. The approved WIP recognizes that the TMDL nutrient WLAs for Significant Chesapeake Bay wastewater dischargers are set in two regulations: 1) the Water Quality Management Planning Regulation (9VAC25-720); and 2) the "General VPDES Watershed Permit

Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed of Virginia” (9VAC25-820). The WIP further outlines that since TSS discharges from wastewater facilities represent an insignificant portion of the Bay’s total sediment load, they may be considered in the aggregate. The WIP also states that wastewater discharges with technology-based TSS limits are considered consistent with the TMDL.

9VAC25-31-220.D requires permits to be written with effluent limits necessary to meet water quality standards and to be consistent with the assumptions and requirements of applicable WLAs. Outfalls 001-003 are not subject to the TMDL because “point source dischargers” as defined in the Nutrient Technology Regulation (9VAC25-40) do not include permitted discharges of noncontact cooling water. Outfalls 004 and 005 are subject to the TMDL. The Department of Environmental Quality (DEQ) has provided coverage under the VPDES Nutrient General Permit (GP) for Outfalls 004 and 005 under permit VAN040086. The requirements of the Nutrient GP currently in effect for this facility are consistent with the Chesapeake Bay TMDL. This individual permit includes technology-based TSS limits of 30 mg/L that are also consistent with the Chesapeake Bay TMDL and WIP.

In the James River, there were screening level exceedances for mercury and arsenic in fish tissue, mercury in sediment, and a VDH Fish Consumption Advisory for kepone; these are considered non-impairing “observed effects”. In Farrar Gut, the Fish Consumption Use is considered fully supporting with observed effects due to the kepone advisory. Outfalls 001 through 003 are once through non-contact cooling water; consequently, they are not a source of kepone, mercury or arsenic and should neither cause nor contribute to the observed effects. Observed concentrations of arsenic and mercury at these outfalls represent background ambient stream concentrations. The discharge from Outfall 004 was analyzed for mercury and kepone with less than quantifiable results; and therefore should neither cause nor contribute to the observed effects. Arsenic was observed at quantifiable levels in the Outfall 004 discharge and is a pollutant reported to be potentially present in coal and coal combustion by-products. A reasonable potential analysis for arsenic indicates that a limitation is not needed during pre-closure activities. Furthermore, the observed concentrations of arsenic are orders of magnitude less than the water quality standard.

Outfall 005 was analyzed for mercury and kepone with less than quantifiable results; and therefore should neither cause nor contribute to the observed effects. Arsenic was observed at quantifiable levels in the 005 discharge and is a pollutant reported to be potentially present in coal and coal combustion by-products. A reasonable potential analysis for arsenic indicates that a limitation is not needed. Furthermore, the observed concentrations of arsenic are orders of magnitude less than the water quality standard. Wastewater from the LAP and UAP during closure activities will discharge through internal Outfalls 101 and 201. Mercury and arsenic limitations detailed below were developed for Outfalls 101 and 201 to address any potential concentrations discharged during the closure activities.

Parameter	Outfalls 101 and 201 UAP and LAP Effluent – Closure Monthly Avg Limitation
Mercury (µg/L)	1.2
Arsenic (µg/L)	240

The Wildlife Use in the James River is fully supporting. The Public Water Supply and Wildlife Uses were not assessed for Farrar Gut.

14. Antidegradation Review and Comments:

James River (Main Channel): Tier 1 X Tier 2 Tier 3

James River (Farrar Gut): Tier 1 X Tier 2 Tier 3

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9VAC25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect those

uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving streams are determined to be Tier 1 waterbodies. That determination is based on the existence of the Richmond-Crater 208 Plan, which allocates BOD and ammonia to multiple dischargers in the segment for the purpose of maintaining dissolved oxygen concentrations at or above the level of the standard. This river segment is also on the 303(d) impaired waters list. See **Attachment 2**.

15. Site Inspection: September 26, 2008 by Heather Horne
 March 10, 2010 by Meredith Williams
 Site Visit: April 29, 2015 by Emilee Adamson and Brian Wrenn
 February 10, 2016 by Brian Wrenn, Kyle Winter, Joy Abel

See **Attachment 11**.

16. Effluent Screening: See **Attachment 4**, which includes Discharge Monitoring Report (DMR) data and effluent data reported in the 2009 application and application addendums.

17. Effluent Limitation Development:

Parameter	Limitation	Basis for Limitation
Outfall 001 – Condenser Cooling Water from Units 7 and 8		
Flow	Monitoring only	PJ*
Total Residual Chlorine	22 µg/L monthly average 32 µg/L daily maximum	WQBEL*
Temperature	Monitoring only	PJ
Heat Rejected	11.3 x 10 ⁸ BTU/Hour	Water Quality Standards (i.e. 316(a) variance)
Outfall 101 – UAP and LAP Closure⁽¹⁾		
Flow	5.0 MGD	PJ
pH	6.0 SU minimum 9.0 SU maximum	Water Quality Standards, Federal Effluent Guidelines – BPT
TSS	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Total Recoverable Chlorine (TRC)	18 µg/L monthly average 32 µg/L daily maximum	WQBEL
Dissolved Oxygen	Monitoring Only	PJ
Total Recoverable Copper	11 µg/L monthly average 20 µg/L daily maximum	PJ
Dissolved Chromium VI	17 µg/L monthly average 32 µg/L daily maximum	PJ
Total Organic Carbon	110 mg/L daily maximum	PJ
Total Recoverable Molybdenum	Monitoring Only	PJ
Total Hardness (as CaCO ₃)	Monitoring Only	PJ

Chloride	360 mg/L monthly average 660 mg/L daily maximum	PJ
Total Recoverable Barium	Monitoring Only	PJ
Total Recoverable Nickel	26 µg/L monthly average 48 µg/L daily maximum	PJ
Total Recoverable Silver	2.7 µg/L monthly average 5.0 µg/L daily maximum	PJ
Total Recoverable Thallium	0.90 µg/L monthly average 0.90 µg/L daily maximum	PJ
Total Recoverable Zinc	100 µg/L monthly average 190 µg/L daily maximum	PJ
Total Recoverable Cadmium	1.4 µg/L monthly average 2.6 µg/L daily maximum	PJ
Total Recoverable Arsenic	240 µg/L monthly average 440 µg/L daily maximum	PJ
Total Recoverable Chromium III	100 µg/L monthly average 190 µg/L daily maximum	PJ
Total Recoverable Lead	17 µg/L monthly average 31 µg/L daily maximum	PJ
Total Recoverable Mercury	1.2 µg/L monthly average 2.2 µg/L daily maximum	PJ
Total Recoverable Cobalt	Monitoring Only	PJ
Total Petroleum Hydrocarbons	Monitoring Only	PJ
Total Recoverable Iron	Monitoring Only	PJ
Total Recoverable Boron	Monitoring Only	PJ
Total Recoverable Selenium	7.7 µg/L monthly average 14 µg/L daily maximum	PJ
Total Recoverable Vanadium	Monitoring Only	PJ
Total Recoverable Aluminum	Monitoring Only	PJ
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines - BPT
Whole Effluent Toxicity (WET) Limitation - Acute, <i>Ceriodaphnia dubia</i> and <i>Pimephales promelas</i>	NOAEC = 100%	PJ
WET Limitation - Chronic, <i>Ceriodaphnia dubia</i> and <i>Pimephales promelas</i>	2.85 TU _c	PJ
Total Recoverable Beryllium	Monitoring Only	PJ
Total Recoverable Antimony	1,300 µg/L monthly average 1,300 µg/L daily maximum	PJ
Outfall 002 – Condenser Cooling Water from Unit 3		
Flow	Monitoring only	PJ

Total Residual Chlorine	22 µg/L monthly average 32 µg/L daily maximum	WQBEL
Total Recoverable Copper	Monitoring only	PJ
Temperature	Monitoring only	PJ
Heat Rejected	6.52 x 10 ⁸ BTU/Hour	Water Quality Standards (i.e. 316(a) variance)
Outfall 201 – UAP and LAP Closure⁽¹⁾		
Flow	5.0 MGD	PJ
pH	6.0 SU minimum 9.0 SU maximum	Water Quality Standards, Federal Effluent Guidelines – BPT
TSS	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
TRC	17 µg/L monthly average 32 µg/L daily maximum	WQBEL
Dissolved Oxygen	Monitoring Only	PJ
Total Recoverable Copper	11 µg/L monthly average 20 µg/L daily maximum	PJ
Dissolved Chromium VI	17 µg/L monthly average 32 µg/L daily maximum	PJ
Total Organic Carbon	110 mg/L daily maximum	PJ
Total Recoverable Molybdenum	Monitoring Only	PJ
Total Hardness (as CaCO ₃)	Monitoring Only	PJ
Chloride	360 mg/L monthly average 660 mg/L daily maximum	PJ
Total Recoverable Barium	Monitoring Only	PJ
Total Recoverable Nickel	26 µg/L monthly average 48 µg/L daily maximum	PJ
Total Recoverable Silver	2.7 µg/L monthly average 5.0 µg/L daily maximum	PJ
Total Recoverable Thallium	0.90 µg/L monthly average 0.90 µg/L daily maximum	PJ
Total Recoverable Zinc	100 µg/L monthly average 190 µg/L daily maximum	PJ
Total Recoverable Cadmium	1.4 µg/L monthly average 2.6 µg/L daily maximum	PJ
Total Recoverable Arsenic	240 µg/L monthly average 440 µg/L daily maximum	PJ
Total Recoverable Chromium III	100 µg/L monthly average 190 µg/L daily maximum	PJ
Total Recoverable Lead	17 µg/L monthly average 31 µg/L daily maximum	PJ
Total Recoverable Mercury	1.2 µg/L monthly average 2.2 µg/L daily maximum	PJ
Total Recoverable Cobalt	Monitoring Only	PJ
Total Petroleum	Monitoring Only	PJ

Hydrocarbons		
Total Recoverable Iron	Monitoring Only	PJ
Total Recoverable Boron	Monitoring Only	PJ
Total Recoverable Selenium	7.7 µg/L monthly average 14 µg/L daily maximum	PJ
Total Recoverable Vanadium	Monitoring Only	PJ
Total Recoverable Aluminum	Monitoring Only	PJ
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines - BPT
WET Limitation - Acute, <i>Ceriodaphnia dubia</i> and <i>Pimephales promelas</i>	NOAEC = 100%	PJ
WET Limitation - Chronic, <i>Ceriodaphnia dubia</i> and <i>Pimephales promelas</i>	2.85 TU _c	PJ
Total Recoverable Beryllium	Monitoring Only	PJ
Total Recoverable Antimony	1,300 µg/L monthly average 1,300 µg/L daily maximum	PJ
Outfall 003 – Condenser Cooling Water from Units 4, 5, and 6		
Flow	Monitoring only	PJ
Total Residual Chlorine	11 µg/L monthly average 16 µg/L daily maximum	WQBEL
Temperature	Monitoring only	PJ
Heat Rejected	5.55 x 10 ⁹ BTU/Hour	Water Quality Standards (i.e. 316(a) variance)
Outfall 301 – LVWWTs		
Flow	6.0 MGD daily maximum	PJ
pH	6.0 SU minimum 9.0 SU maximum	Federal Effluent Guidelines – BPT*
TSS	30 mg/L monthly average 50 mg/L daily maximum	Federal Effluent Guidelines – BPT, PJ
TRC	180 µg/L monthly average 180 µg/L daily maximum	WQBEL
Total Recoverable Copper	72 µg/L monthly average 72 µg/L daily maximum	WQBEL
Chloride	3100 mg/L monthly average 3100 mg/L daily maximum	WQBEL
Total Recoverable Nickel	230 µg/L monthly average 230 µg/L daily maximum	WQBEL
Total Recoverable Zinc	900 µg/L monthly average 900 µg/L daily maximum	WQBEL

Heptachlor	0.015 µg/L monthly average 0.015 µg/L daily maximum	HHBEL
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines - BPT
Outfall 302 – FGD WWTP		
Flow	Monitoring only	PJ
pH	Monitoring only	PJ - Internal outfall to 301. pH limited at outlet of LVWWTs.
TSS	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Total Recoverable Arsenic	8 µg/L monthly average** 11 µg/L daily maximum	Federal Effluent Guidelines – BAT*
Total Recoverable Mercury	356 ng/L monthly average** 788 ng/L daily maximum	Federal Effluent Guidelines – BAT
Nitrate/Nitrite as N	4.4 mg/L monthly average** 17 mg/L daily maximum	Federal Effluent Guidelines – BAT
Total Recoverable Selenium	12 µg/L monthly average** 23 µg/L daily maximum	Federal Effluent Guidelines – BAT
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines – BPT
Outfall 303 – Metal Cleaning Waste Treatment Basin		
Flow	Monitoring only	PJ
pH	Monitoring only	PJ - Internal outfall to 301. pH limited at outlet of LVWWTs.
TSS	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Total Recoverable Copper	1.0 mg/L monthly average 1.0 mg/L daily maximum	Federal Effluent Guidelines – BPT/BAT
Total Recoverable Iron	1.0 mg/L monthly average 1.0 mg/L daily maximum	Federal Effluent Guidelines – BPT/BAT
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines – BPT
Outfall 304 – Combustion Residual Leachate		
Flow	Monitoring only	PJ
pH	Monitoring only	PJ - Internal outfall to 301. pH limited at outlet of LVWWTs.
TSS	30 mg/L monthly average 100 mg/L daily maximum	PJ
Total Recoverable Arsenic	8 µg/L monthly average 11 µg/L daily maximum	PJ
Total Recoverable Mercury	356 ng/L monthly average 788 ng/L daily maximum	PJ
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	PJ

Outfall 305 – Coal Pile Runoff		
Flow	Monitoring only	PJ
TSS	50 mg/L instantaneous maximum	Federal Effluent Guidelines – BPT
Outfall 004 – Pre-Drawdown⁽¹⁾		
Flow	Monitoring only	PJ
pH	6.0 daily minimum 9.0 daily maximum	Water Quality Standards, Federal Effluent Guidelines – BPT
Total Suspended Solids	30 mg/L monthly average 88 mg/L daily maximum	Federal Effluent Guidelines – BPT
Dissolved Oxygen	Monitoring only	PJ
Ammonia as N	0.61 mg/L monthly average 0.80 mg/L daily maximum**	WQBEL
Total Organic Carbon	110 mg/L daily maximum	PJ – taken from previous bulk oil guidance to address releases of oily water to ash pond.
Total Recoverable Thallium	0.47 µg/L monthly average 0.47 µg/L daily maximum**	HHBEL
Total Petroleum Hydrocarbons	Monitoring only	PJ – see explanation for Total Organic Carbon below.
Total Recoverable Selenium	5.9 µg/L monthly average 7.3 µg/L daily maximum**	WQBEL
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines - BPT
WET Limitation	1.36 TU _c	Reasonable potential analysis of WET data.
Outfall 401 – Metal Cleaning Waste Treatment Basin		
Flow	Monitoring only	PJ
pH	Monitoring only	PJ - Internal discharge to LAP (Outfall 004). pH limited on discharge from ash pond.
Total Suspended Solids	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Total Recoverable Copper	1.0 mg/L monthly average 1.0 mg/L daily maximum	Federal Effluent Guidelines – BPT/BAT
Total Recoverable Iron	1.0 mg/L monthly average 1.0 mg/L daily maximum	Federal Effluent Guidelines – BPT/BAT
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines – BPT
Outfall 402 – FGD WWTP		
Flow	Monitoring only	PJ

pH	Monitoring only	PJ - Internal discharge to LAP (Outfall 004). pH limited on discharge from ash pond.
TSS	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Total Recoverable Arsenic	8 µg/L monthly average** 11 µg/L daily maximum	EPA Comments, Federal Effluent Guidelines – BAT
Total Recoverable Mercury	356 ng/L monthly average** 788 ng/L daily maximum	EPA Comments, Federal Effluent Guidelines – BAT
Nitrate/Nitrite as N	4.4 mg/L monthly average** 17 mg/L daily maximum	EPA Comments, Federal Effluent Guidelines – BAT
Total Recoverable Selenium	12 µg/L monthly average** 23 µg/L daily maximum	EPA Comments, Federal Effluent Guidelines – BAT
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines – BPT
Outfall 005 – Pre-Drawdown⁽¹⁾		
Flow	Monitoring only	PJ
pH	6.0 daily minimum 9.0 daily maximum	Water Quality Standards, Federal Effluent Guidelines - BPT
Total Suspended Solids	30 mg/L monthly average 100 mg/L daily maximum	Federal Effluent Guidelines – BPT
Dissolved Oxygen	Monitoring Only	PJ
Oil and Grease	15 mg/L monthly average 20 mg/L daily maximum	Federal Effluent Guidelines – BPT

* Acronyms from Federal Effluent Guidelines:

- BPT – Best Practical Treatment
- BAT – Best Available Treatment
- PJ – Professional Judgment
- WQBEL – Water Quality Based Limit
- HHBEL – Human Health Based Limit

**Final limitations – A compliance schedule is included in this permit for internal Outfalls 301, 302 and 402, 304, and 004. See item 19 for further discussion.

(1) See Pre-Drawdown/Closure discussion below for the UAP and LAP.

The final rule for the Federal Effluent Guidelines (FEGs) for the Steam Electric Power Generating Point Source Category was signed September 30, 2015, published in the Federal Register on November 3, 2015, and becomes effective January 4, 2016. These FEGs replaced the original rule signed in 1982. However, EPA did not change the applicability date for new source performance standards, November 19, 1982. Therefore, any power generating unit put into operation after November 19, 1982 is considered a new source. Chesterfield Power Station was put in operation in 1945. Units 3 through 6 were put in service in 1952 (Unit 3), 1960 (Unit 4), 1964 (Unit 5) and 1969 (Unit 6). Consequently, Units 3 through 6 are considered existing generating sources and not subject to New Source Performance Standards. Units 7 and 8 were put in service in 1990 and 1992, respectively. Because these units were put in service after 1982, the isolated discharge from these units, noncontact cooling water to Outfall 001, is subject to New Source Performance Standards (NSPS).

In the reissuance of this permit, DEQ used water quality-based reasonable potential analyses and professional judgment to develop limitations for pollutants not addressed under the federal effluent limitation guidelines (FEGs) for steam electric power plants.

Effluent limitations for discharges from the UAP and LAP were developed for two distinct phases of operation: operation prior to closure activities (Outfalls 004 and 005 – Pre-Drawdown) and operation during closure activities (Outfalls 101 and 201 – UAP and LAP Effluent - Closure). Pre-drawdown activities are discussed below under the individual outfalls. Closure activities are addressed below in the Outfall 101 and 201 discussion.

Reasonable Potential Evaluations to determine the need for Water Quality Based (WQ-based) effluent limitations are included in **Attachment 5.a.** through **5.f.** Documentation of ammonia and nutrient evaluations is also included in **Attachment 5.g.** and **5.h.**

Outfalls 001-003:

NOTE: Neither limitations nor monitoring requirements for pH are included on Outfalls 001, 002, and 003, which are non-contact, once-through cooling water outfalls. The Federal Effluent Guidelines for Steam Electric Power do not impose pH limitations on non-contact, once-through cooling water discharges. No reasonable potential exists for the pH of the cooling water or the receiving stream to be changed even in the event of equipment failure. In addition, the permittee has no control over the pH of the intake water and no reasonable remedy is available to the permittee if the intake water fails to meet the applicable water quality standards.

TRC: Outfalls 001 through 003 are assigned TRC limitations based on the Water Quality reasonable potential analyses in **Attachment 5.a.** and **b.** Outfall 001 is also subject to FEG [40CFR 423.15(a)(8)(i)] NSPS Effluent Limitations of 0.20 mg/L. Outfalls 002 and 003 are also subject to FEG [40CFR 423.13(b)(1)] BAT Effluent Limitations of 0.20 mg/L. The WQ-based effluent limitations are assigned because they are more stringent than the FEG technology based limitations.

Heat Rejected: The Heat Rejected limitations are supported by the 316(a) variance approved with the 2004 permit reissuance. The limitations are appropriate to ensure that heat rejection does not exceed the values in the 316(a) study. See **Attachment 7** for additional discussion.

See **Attachments 5.a** and **5.b** for additional discussion.

Outfalls 101 and 201:

Closure activities will include the drawdown and dewatering of the wastewater in the UAP and LAP in preparation of capping and closing in place the CCRs. Drawdown in both ponds will involve pumping down free standing water below existing outfall structures to the settled CCR layers. Dewatering will involve the pumping of pore water or interstitial water from the CCRs. For the purposes of effluent limitation development, it is assumed that the dewatering wastewater will have the highest concentrations of pollutants as it has the closest contact with the CCRs. During the development of the CCR rule, EPA identified 23 pollutants known to be present in CCRs that present potential hazards to human health and ecological receptors. In addition, the permittee simulated four dewatering events and analyzed the samples for a wide range of pollutants. The results of these samples along with EPA's list of pollutants were used to determine the appropriate parameters to evaluate and the necessary effluent limitations for each parameter during closure activities. See **Attachment 5.f** for further discussion on the effluent limitation development. The closure effluent limitations become effective upon intentional drawdown of the water elevation below the existing outfall structures in the UAP or LAP, whichever occurs first.

Flow: The estimated discharge flow rate during closure activities is 5.0 MGD. This rate is based on information provided by the permittee. It considers the estimated drawdown volume and the estimated timeframe for closure.

pH, TSS, O&G: These limitation and monitoring requirements are included to satisfy the requirements of 40CFR 423.

DO, TOC, TPH: These limitation and monitoring requirements are carried forward from the pre-closure operations at the LAP and UAP – Outfalls 004 and 005, respectively.

Total Residual Chlorine, Total Recoverable Copper, Dissolved Chromium VI, Total Hardness (as CaCO₃), Chloride, Total Recoverable Nickel, Total Recoverable Silver, Total Recoverable Thallium, Total Recoverable Zinc, Total Recoverable Cadmium, Total Recoverable Arsenic, Total Recoverable Chromium III, Total Recoverable Lead, Total Recoverable Mercury, Total Recoverable Selenium, Total

Recoverable Antimony: See **Attachment 5.f** for further discussion of effluent limitation development for this outfall. Many of the parameters requiring monitoring and limits are metals. Therefore, total hardness monitoring is required based on PJ.

Total Recoverable Molybdenum, Total Recoverable Barium, Total Recoverable Cobalt, Total Recoverable Iron, Total Recoverable Boron, Total Recoverable Vanadium, Total Recoverable Aluminum, Total Recoverable Beryllium: No applicable Virginia WQS exist for these parameters. In lieu of limits for these parameters, WET limitations were developed to identify any potential toxicity issues associated with the discharge of these pollutants. Monitoring concurrent with the WET monitoring is required in this permit. Should any toxicity be demonstrated through the WET monitoring, the concurrent monitoring for the parameters above will assist in identifying the source of the toxicity.

WET Limitations: As discussed above, closure activities are assumed to be a worst case scenario discharge from this outfall. To address the potential toxic characteristics of the closure discharge and to provide limitations on parameters known to be present in CCRs for which there are no water quality standards, acute and chronic WET testing limitations are added to this permit. See **Attachment 5.f** and **Attachment 9** for further discussion of effluent limitation development for this outfall.

Outfall 301:

As described above in item 10, Outfall 301 will discharge wastewater from the LVWWTS. The LVWWTS will treat low volume wastes that have historically been treated in the LAP and UAP and includes, but is not limited to, treated FGD wastewater, treated metals pond wastewater, leachate wastewater, coal pile runoff, and toe drain wastewater from the LAP and UAP. It should be noted that pretreatment of the FGD wastewater, leachate and coal pile runoff will ultimately be provided in advance of the LVWWTS. At the time that the LVWWTS commences discharging, the facility will have converted to a dry ash management system; therefore, no ash sluice water will be routed to the LVWWTS.

The final FEGs require specific monitoring and numerical limits for FGD wastewaters prior to comingling with any other low volume wastewaters. In accordance with the FEGs and at the request of EPA, a new internal outfall (302) is established in this reissuance to isolate and characterize the FGD waste stream. See Outfall 302 below for additional details.

The FEGs require specific monitoring and numerical limits for metal cleaning wastes prior to comingling with the low volume wastewaters. In accordance with the FEGs, internal outfall 303 (previously 104 in the 2004 permit) is carried forward in this reissuance to isolate and characterize the metals cleaning pond waste stream. See Outfall 303 below for additional details.

Numerical limitations for leachate from the FFCP Management Facility are required in this permit. The limitations reflect the New Source Performance Standards for leachate wastewater in 40CFR 423.1(b), but are included in the permit based on professional judgment. See Outfall 304 below for additional details.

The FEGs require specific monitoring and numerical limits for coal pile runoff. In accordance with the FEGs, an internal outfall (305) is established in this reissuance to isolate and characterize the coal pile runoff waste stream. See Outfall 305 below for additional details.

Toe drain wastewater is comingled with the other low volume wastewaters described above in item 10. The comingled wastewater is evaluated for reasonable potential as described below and in **Attachment 5.c**. Only waste streams from the metals cleaning pond, FGD WWTP, FFCP Management Facility, and coal pile runoff, have internal outfalls with applicable effluent limitations prior to comingling with other low volume wastewaters.

WQ-based effluent monitoring and limitations are typically developed using ambient flow data. In this case the outfall is an internal outfall to the 003 cooling water discharge channel. In order to determine ambient flows for use in the reasonable potential analysis, daily flow data from Outfall 003 were evaluated to determine the 1Q10, 7Q10, 30Q10, 30Q5, and harmonic mean flows. The application addendum (See **Attachment 4.a**) received from the permittee on May 5, 2016 indicated that the low flows reflected in the previous ten years are not representative of normal operating conditions. The addendum asserts that 57.28 MGD is an appropriate minimum process-driven flow for Outfall 003. Given this information, the evaluation has been adjusted to reflect minimum 1Q10

and 7Q10 flows of 57.28 MGD. In addition, minimum daily flow monitoring and reporting has been added for Outfall 003 and a prohibition on the discharge from Outfall 301 has been added when the flow from 003 is less than 57.28 MGD. See **Attachments 4.b** and **5.c** for further discussion.

pH, Total Suspended Solids (TSS), Oil and Grease (O&G): Effluent limitation requirements for these parameters for internal outfall 301 are derived from FEGs [40CFR 423.12(b)]. Coal pile runoff is one of the low volume wastewater sources to outfall 301 (See Wastewater Summary Table in Item 10). The FEG-BPT require a TSS maximum concentration of 50 mg/L [40CFR 423.12(b)(9)]. In the application addendum dated May 5, 2016, the permittee indicated treatment will be installed to address coal pile runoff as an isolated wastestream. However, that treatment is not anticipated until after the LVWWTS is operating and discharging. Therefore, the most stringent maximum TSS concentration limitation, 50 mg/L, is applied to Outfall 301.

Total Recoverable Copper, Chloride, TRC, Total Recoverable Nickel, Total Recoverable Zinc: These limitations are water quality based effluent limitations developed through the reasonable potential analysis. Worst case scenario pollutant concentrations for TRC and chloride presented with the October 19, 2015 additional information submittal indicated the need for further evaluation of water quality-based limits. The permittee felt that the concentrations for TRC and chloride were anomalous. Chlorine is not introduced anywhere in the treatment processes going to Outfall 301, so elevated concentrations would not be expected. Chloride is an expected pollutant from the FGD WWTP; however, not from the Master sump and yard sump waste streams which are primarily stormwater. The permittee conducted another round of sampling at the individual waste streams and found TRC and chloride concentrations in line with the expected levels. Despite the new data, the reasonable potential analyses indicated that limitations for TRC and chloride are still needed. See **Attachment 5.c** for additional discussion.

Heptachlor: Effluent limitations for Heptachlor are based on human health standards. See **Attachment 5.c** for additional discussion.

Outfall 302:

pH: Only pH monitoring is required at this internal outfall. Compliance with pH limitations per 40CFR 423.12(b)(1) is determined at Outfall 301.

TSS, O&G: Effluent limitations for these pollutants are derived from the FEG-BPT [40CFR 423.12(b)(11)].

Total Recoverable Arsenic, Total Recoverable Mercury, Total Recoverable Selenium, Nitrate/Nitrite as N: Effluent limitations for these pollutants are derived from FEG-BAT [40CFR 423.13(g)(1)(i)]. New source performance standards (NSPS) are not applicable to this discharge. *New source* is defined in the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation [9 VAC 25-31-10]. In referencing new sources, the preamble of 40CFR 423 consistently refers to new sources as new power generating units. Although wastewater from the FGD units (installed on power generating units 3, 4, 5, and 6) is a new wastestream, the power generating units are existing. The only new generating units are units 7 and 8 which are natural gas-fired units. The only wastestream associated with units 7 and 8 is non-contact cooling water, and NSPS have been applied to this wastestream.

Outfall 303:

pH: Only pH monitoring is required at this internal outfall. Compliance with pH limitations per 40CFR 423.12(b)(1) is determined at Outfall 301.

TSS, O&G: Effluent limitations for these pollutants are derived from the FEG-BPT [40CFR 423.12(b)(5)].

Total Recoverable Copper, Total Recoverable Iron: Effluent limitations for these pollutants are derived from FEG-BPT/BAT [40CFR 423.12(b)(5) and 40CFR 423.13(e)].

Outfall 304:

As discussed above, 40CFR Part 423, Federal Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category published by EPA as a final rule in the Federal Register on November 3, 2015 applies to discharges from this facility.

The new rule establishes effluent limitation guidelines that apply to combustion residual leachate for existing and new sources. "New source" is defined at 9 VAC 25-31-10. This definition applies unless the applicable new source performance standard otherwise defines "new source." The FEG Technical Development Document and final rule refer to new and existing sources in terms of power generating units. §423.15 requires that NSPS apply to any new source as of November 19, 1982. The permittee has four coal fired power generating units that produce combustion residuals, the most recent of which was put in service in May of 1969. Consequently, the combustion residual leachate generated by the proposed landfill is technically considered an existing source under the FEGs.

The VPDES Regulation, at 9 VAC 25-31-210 and 220, provides for the establishment of permit conditions, including effluent limitations, on a case-by-case basis, to assure compliance with the requirements of the State Water Control Law. As discussed in the Guidance on Preparing VPDES Permit Limits Memo No. 00-2011, state law does not prescribe the method by which such case-by-case decisions are made but rather indicates that the decision may "consider available or installed technology, the required water quality or any combination of these considerations."

New source performance standards recognize that the owners of new sources have the opportunity to incorporate into their operations the best available demonstrated control technologies. The permittee has proposed a new landfill to receive coal combustion residuals upon the facility's conversion to dry ash management. Combustion residual leachate from that landfill will be a new wastestream. The technology required to treat to NSPS standards for combustion residual leachate is also required for the BAT standards for the FGD. Because the permittee is subject to the BAT standards for the FGD wastestream, the necessary treatment technology is available and will be installed at the permitted facility. Consequently, it is the Department's professional judgment to apply NSPS to the combustion residual leachate.

Section XVI.A.1 of the 11/3/15 publication of the federal register (Vol. 80; No.212) of the final steam electric guidelines rule addresses timing of implementation. There is no extended implementation period for new sources under the rule. This requirement is based on the fact that new sources have the opportunity to install treatment prior to the generation of the wastestream. In this case, the permittee is already generating the ash and will have to convert to dry ash management to meet the requirements of the CCR rule and the Steam Electric Guidelines. Consequently, landfill leachate may be generated before the appropriate treatment can be designed, constructed and commissioned. Given these circumstances and the fact that the limitations are assigned based on Professional Judgment and in accordance with 9VAC25-31-250, a compliance schedule of 2 years is proposed to allow the permittee to design, construct and commission a combustion residual leachate treatment facility to meet the assigned limitations. Alternatively, the combustion residual leachate may be redirected to the FGD WWTP. The NSPS guidelines for combustion residual leachate address arsenic and mercury. The concentrations are equivalent to the BAT guidelines for FGD wastewater. 423.13(n) of the guidelines states that "in the event that wastestreams from various sources are combined for treatment or discharge, the quantity of each pollutant property...attributable to each controlled waste source shall not exceed the specified limitation for that waste source." Because the guidelines for arsenic and mercury are the same for both wastestreams, the wastestreams may be combined for treatment and discharge without adjusting the corresponding limitations. See FS section 19 for further discussion of compliance schedules.

pH, TSS, Total Recoverable Arsenic, Total Recoverable Mercury, O&G: Effluent monitoring and limitations for these parameters are included in the permit based on PJ. The numerical limitations are taken from 40CFR 423.15(b)(3) and (b)(16).

Outfall 305:

TSS: The effluent limitation for this pollutant is derived from FEG-BPT [40CFR 423.12(b)(9)]. The guidelines [40CFR 423.12(b)(10)] specify that "any untreated overflow from facilities designed, constructed and operated to treat the volume of coal pile runoff which is associated with a 10 year, 24 hour rainfall event shall not be subject to the [TSS] limitation..." The current facility is designed and operated to direct a 10 year 24 hour storm event to the LAP for treatment prior to discharge to Outfall 004. Phase I of the Integrated Ash Plan involves construction of a coal pile basin, which will be designed and operated to contain a 25 year 24 hour storm event. This basin will discharge to the

LVWWTS for treatment and ultimately to Outfall 301. Overflows from the coal pile runoff basins exceeding the design storm event will be directed to the thermal channel and ultimately, Outfall 003. These overflows are not subject to effluent limitations.

Outfall 004 – Pre-Closure:

During pre-closure activities, Outfall 004 will operate as it has historically, decanting, by gravity, free standing wastewater in the LAP. This wastewater is made up of various low volume waste streams including but not limited to treated metals cleaning wastewater, treated FGD wastewater, and wastewater from toe drains around the LAP.

The FEGs require specific monitoring and numerical limits for metal cleaning wastes prior to comingling with any other low volume wastewaters. In accordance with the FEGs, internal outfall 401 (previously 104 in the 2004 permit) is carried forward in this reissuance to isolate and characterize the metals cleaning pond waste stream. See Outfall 401 below for additional details.

The final FEGs require specific monitoring and numerical limits for FGD wastewaters prior to comingling with any other low volume wastewaters. In accordance with the FEGs and at the request of EPA, a new internal outfall (402) is established in this reissuance to isolate and characterize the FGD waste stream. See Outfall 402 below for additional details.

Toe drain wastewater is comingled with the other low volume wastewaters described above in item 10. The comingled wastewater is evaluated for reasonable potential as described below and in **Attachment 5.d**. Only waste streams from the metals cleaning pond and FGD WWTP have internal outfalls with applicable effluent limitations prior to comingling with other low volume wastewaters.

All priority pollutants have been analyzed for reasonable potential (using the conservative assumptions of EPA's guidance: Technical Support Document for Water Quality Based Toxics Control, 1991) of exceeding water quality criteria and all applicable water quality based limits are imposed. See **Attachment 5.d** for further discussion. To address narrative standards, the permit also includes whole effluent toxicity limits (See **Attachment 9**). Seepage discharge from the impoundments to the receiving stream is addressed through the ground water monitoring discussed in Part 20.g of the Fact Sheet. All Pre-Closure monitoring and limitations are in effect until closure activities are initiated as defined by Part I.C.25.

The WQBELs discussed below were developed using no dilution from the receiving stream. See **Attachment 5.c** for further discussion.

pH: The limitation is based on the Water Quality Standards (WQS) for Class III receiving streams (9VAC25-260-50). 40CFR 423.12(b)(1) requires all discharges, except once through cooling water, to meet the pH limitations. The limitation is also consistent with the Industrial Storm Water General Permit, Sector O coal pile runoff pH limitations.

TSS and O&G: These limitations for Outfall 004 are based on the technology limitations from the FEGs [40CFR 423.12.(b)(3) and (4)] for low volume waste and fly ash and bottom ash transport water. Outfall 004 also receives coal pile runoff, which makes up 0.128 MGD (during a 1" rainfall) of the 10.3 MGD 10th percentile flow reported in the DMRs over the last three years. The FEG-BPT effluent limitation for coal pile runoff is a daily maximum TSS concentration of 50 mg/L [40CFR 423.12.(b)(9)]. The FEGs (40CFR 423.12.(b)(10)) provide an exception to the 50 mg/L technology standard for "untreated overflow from facilities designed, constructed, and operated to treat the volume of coal pile runoff associated with a 10 year, 24 hour rainfall event..." This exception does not apply to the LAP because the effluent receives settling treatment. The FEGs establish a 100 mg/L limit in the other applicable sections (40CFR 423.12.(b)(3) and (4)), for the contributing flows to Outfall 004 aside from coal pile runoff. 40CFR 423.12 (b)(12) states: "*in the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property controlled in paragraphs (b)(1) through (11) of this section attributable to each controlled waste source shall not exceed the specified limitations for that waste source.*" Consequently, the FEGs authorize the application of limitations based on a mass balance approach. Given the variable flows from the coal pile runoff, a conservative estimate of the flow contribution (i.e., the highest flows from the coal pile runoff) was calculated based on a 25 year 24 hour storm event with no infiltration. The resulting flow rate is 2.4

MGD. This flow rate was used with a conservative estimate of total flow (i.e., 10th percentile flows reported over the last three years) to calculate the flow weighted average concentration as follows:

$$\frac{[(7.9 \text{ MGD} * 100 \text{ mg/L}) + (2.4 \text{ MGD} * 50 \text{ mg/L})]}{10.3 \text{ MGD}} = 88 \text{ mg/L}$$

A compliance schedule is not appropriate as the Federal Regulations required compliance no later than July 1, 1977 (40CFR 401.12(b)). Furthermore, the DMR data summary indicates that the facility is already in compliance with the reduced limitation for TSS.

Dissolved Oxygen: Monitoring for this parameter was initially introduced in the 1991 permit. The DMR data summary in **Attachment 4.a** does not indicate any violations of the Class II dissolved oxygen criterion (9VAC25-260-50) of 5.0 mg/L daily average. However, monitoring is beneficial to demonstrate that the discharges continue to maintain the criteria. Consequently, the monitoring is carried forward in this reissuance.

Ammonia as N, Total Recoverable Selenium: These limitations are water quality based effluent limitation developed through the reasonable potential analysis. A compliance schedule for these limitations is included in the permit. See Item 19 below for further discussion on the compliance schedule. See **Attachment 5.d** for further discussion on these limitations.

Total Recoverable Thallium: Effluent limitations for thallium are based on human health standards. A compliance schedule for this limitation is included in the permit. See Item 19 below for further discussion on the compliance schedule. See **Attachment 5.d** for additional discussion.

Total Petroleum Hydrocarbons (TPH) and Total Organic Carbon (TOC): The limitation for TOC and monitoring for TPH are assigned to Outfall 004 based on PJ to address potentially oily wastewater directed to Outfall 004 through the master sump. Storm water from oil storage containments is directed to the master sump and ultimately Outfall 004. The limitation and monitoring were originally based on the Bulk Oil Facility Guidance Memo 97-2002. Although the guidance suggests a limitation for TPH of 30 mg/L monthly average, O&G was already limited at this outfall at 15 mg/L monthly average. Consequently, the O&G limitation provided sufficient control of TPH in facility discharges. The Petroleum Contamination General Permit (GP) adopted February 26, 2013 contains a maximum daily TPH limitation of 15 mg/L for discharges contaminated by petroleum products other than gasoline. The fact sheet for this GP further states that while O&G has historically been the parameter used for potential sources of petroleum hydrocarbons, DEQ recently “determined that the oil & grease analytical method is better suited for detection of animal and vegetable fats rather than petroleum.” Therefore, a TPH effluent limit is used in the GP in lieu of O&G. However, in this permit, the O&G limitation is based on the FEG (40 CFR 423.12(b)(3)), so the limited parameter cannot be substituted while maintaining compliance with federal law. A review of the DMR data indicates that, like O&G, TPH is consistently reported as less than quantifiable, demonstrating no reasonable need for a TPH effluent limit at this time. In order to continue accurately monitoring petroleum in the effluent, TPH monitoring is carried forward in this reissuance; however, daily maximum reporting is required in lieu of monthly average to be consistent with the Petroleum GP guidance.

WET Limitation: A more stringent WET limitation was developed for the outfall per the discussion in **Attachment 9**.

Outfall 401:

pH: Only pH monitoring is required at this internal outfall. Compliance with pH limitations per 40CFR 423.12(b)(1) is determined at Outfall 004.

TSS, O&G: Effluent limitations for these pollutants are derived from the FEG-BPT [40CFR 423.12(b)(5)].

Total Recoverable Copper, Total Recoverable Iron: Effluent limitations for these pollutants are derived from FEG-BPT/BAT [40CFR 423.12(b)(5) and 40CFR 423.13(e)].

Outfall 402:

pH: Only pH monitoring is required at this internal outfall. Compliance with pH limitations per 40CFR 423.12(b)(1) is determined at Outfall 004.

TSS, O&G: Effluent limitations for these pollutants are derived from the FEG-BPT [40CFR 423.12(b)(11)].

Total Recoverable Arsenic, Total Recoverable Mercury, Total Recoverable Selenium, Nitrate/Nitrite as N: All effluent limitation requirements for internal outfall 402 are derived from the FEGs [40CFR 423.13(g)(1)(i)]. See the discussion above for Internal Outfall 302 for a discussion of NSPS.

Once the conversion to dry ash management occurs and the LVWWTS is functional, Outfalls 401 and 402 will be converted to Outfalls 303 and 302, respectively.

Outfall 005 – Pre-Closure:

As discussed above in Outfall 004 - Closure, effluent limitations for Outfall 005 were developed for two distinct phases of operation: operation prior to closure activities (pre-closure) and operation during closure activities (closure). Pre-Closure limitations have been developed similarly to those for Outfall 004 – Pre-Closure for the treatment pond from which Outfall 005 discharges (see **Attachment 5.e**). Pre-Closure limitations are in effect until closure activities are initiated as described above in the Outfall 004 –Pre-Closure discussion.

pH: The limitation is based on the WQS for Class II receiving streams (9VAC25-260-50). 40CFR 423.12(b)(1) requires all discharges, except once through cooling water, to meet the pH limitations.

TSS and O&G: These limitations for Outfall 005 are based on the technology limitations from the FEGs [40CFR Part 423.12(b)(3)] for low volume waste.

Dissolved Oxygen: Monitoring for this parameter was initially introduced in the 1991 permit. The DMR data summary in **Attachment 4.a** does not indicate any violations of the Class II dissolved oxygen criterion (9VAC25-260-50) of 5.0 mg/L daily average. However, monitoring is beneficial to demonstrate that the discharges continue to maintain the criteria. Consequently, the monitoring is carried forward in this reissuance.

18. Antibacksliding: The ammonia limitations at Outfall 004 were removed with this reissuance. Per the 9 VAC 25-31-220.L.2, exceptions can be made if "information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance." See **Attachment 5.g**. for further discussion. Total phosphorus limitations were removed from Outfalls 001-005. The justification for the removal of these limitations is developed in **Attachments 5.h**. The Total Phosphorus limitations were technology-based. Antibacksliding does not apply to technology-based limitations, unless the proposed relaxation is less stringent than existing FEGs or would not maintain water quality, neither of which is the case for Total Phosphorus at Outfalls 001-005. Outfalls 006-011 are being removed in this reissuance because there is no longer a discharge of pollutants to state waters. According to 9 VAC 25-31-220.L.2, limitations can be made less stringent (or removed) if material and substantial alterations or additions have been made to the facility that would justify less stringent limits. In this case the source of pollutants has been removed, and the effluent now represents river water with no additives. Consequently, antibacksliding does not prohibit the removal of effluent limitations for Outfalls 006-011. See **Attachment 6**.

19. Compliance Schedule – Part I.B: Five compliance schedules are included in this permit: one schedule for Outfall 002, one schedule for Outfall 301, one schedule for Outfalls 302 and 402, one schedule for Outfall 304, and one schedule for Outfall 004.

Outfall 002 has a compliance schedule for total recoverable copper. Because this is a large volume noncontact cooling water wastestream, several factors will need to be considered in addition to treatment. The permittee will need time to determine the best method for complying with the water quality based limits and to plan, design, and install any necessary equipment upgrades. 9VAC25-31-250.A.3 allows for compliance schedules to meet "new or more restrictive water quality based effluent limitations," but limits the period of the compliance schedule to the term of the permit. Based on these factors, the compliance schedule is appropriate.

Outfall 301 discharges effluent from the LVWWTS. A 4 year schedule of compliance is proposed for copper, chloride, nickel and zinc. 9VAC25-31-250 allows schedules of compliance to be established for “existing sources.” While this is a new treatment facility, it will be receiving existing wastestreams that are being redirected away from the LAP to facilitate closure in accordance with the CCR rule. The schedule for pond closure does not allow the permittee sufficient time to design, construct and commission treatment facilities necessary to meet the final limitations prior to the commencement of discharge to the LVWWTS. The proposed four year schedule will allow the permittee to design and build the treatment facilities (including pretreatment for contributing wastestreams) before the limits become effective.

Outfalls 302 and 402 discharge wastewater from the FGD WWTP during different phases of ash management. The Steam Electric FEGs (40CFR 423, November 3, 2015) require technology-based numerical limitations for total recoverable arsenic, total recoverable mercury, total recoverable selenium, and nitrate/nitrite as N. These limitations are based on FGD treatment technology that includes chemical precipitation and biological treatment. The FEGs [40CFR 423.13(g)(1)(i)] require facilities to meet the effluent limitations for FGD wastewater “as soon as possible beginning November 1, 2018, but no later than December 31, 2023.” EPA explains in the preamble to the FEGs (Federal Register, November 3, 2015, p. 67883) that a determination of “as soon as possible” should be based on factors including (a) “time to plan, design, procure, and install equipment;” (b) changes being made at the power station in response to the greenhouse gas regulations and final CCR rule; (c) a commissioning period to optimize the equipment; and “(d) other factors as appropriate.” Currently, the FGD WWTP at the facility only includes a chemical precipitation component. The permittee will need time to plan, design, construct, and optimize a biological treatment system at the FGD WWTP. The permittee estimates that the upgrades and optimization of the equipment will be completed by March 29, 2022. 9VAC25-31-250.A.1 states that when a compliance schedule is specified in a permit to comply with the law, the Clean Water Act (CWA), and regulations, the schedule of compliance “shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA.” The date of compliance, March 29, 2022, stated in the permit is well before the final date of compliance, December 31, 2023, included in the FEGs. Based on these factors, the compliance schedule is appropriate.

Outfall 304 assigns effluent limitations on the landfill leachate discharge consistent with the FEGs applicable to new sources. Section XVI.A.1 of the 11/3/15 publication of the federal register (Vol. 80; No.212) of the final steam electric guidelines rule addresses timing of implementation. There is no extended implementation period for new sources under the rule. This requirement is based on the fact that new sources have the opportunity to install treatment prior to the generation of the wastestream. In this case, the permittee is already generating the ash and will have to convert to dry ash management to meet the requirements of the CCR rule and the Steam Electric Guidelines. Consequently, landfill leachate may be generated before the appropriate treatment can be designed, constructed and commissioned. Given these circumstances and the fact that the limitations are assigned based on Professional Judgment and in accordance with 9VAC25-31-250, a compliance schedule of 2 years is proposed to allow the permittee to design, construct and commission a combustion residual leachate treatment facility to meet the assigned limitations.

Outfall 004 – Pre-Closure has a compliance schedule for ammonia as N, total recoverable thallium, and total recoverable selenium. The permittee will need time to determine the best method for treating the wastewater to meet the water quality based limits and to plan, design, and install any necessary equipment upgrades. 9VAC25-31-250.A.3 allows for compliance schedules to meet “new or more restrictive water quality based effluent limitations,” but limits the period of the compliance schedule to the term of the permit. Based on these factors, the compliance schedule is appropriate.

20. Special Conditions – Part I.C

a. I.C.1. Notification Levels

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

b. I.C.2. Nutrient Reopener

Rationale: 9 VAC 25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new

construction, expansion or upgrade. 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

c. I.C.3. Materials Handling/Storage

Rationale: 9VAC25-31-50.A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.

d. I.C.4. Discharge of Chlorine in Cooling Water

Rationale: This special condition prohibits the discharge of chlorine from any one power generating unit for more than 2 hours in any one day unless the utility can demonstrate that it is required for macroinvertebrate control. This 2-hour prohibition is contained in Federal Effluent Guidelines (FEG) as BAT [40CFR 423.13(b)(2)] for Outfalls 002 and 003, and NSPS [40CFR 423.15(a)(8)(ii)] for Outfall 001. This prohibition is different from the 2004 permit. The 2004 permit reflected the FEG for cooling water from a plant with electric generating capacity less than 25 megawatts (MW). The condition is revised to appropriately reflect the FEG requirement for plants with electric generating capacity greater than 25 MW.

e. I.C.5. Operation and Maintenance Manual Requirement

Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9VAC25-31-190 E, and 40CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

f. I.C.6. Discharge of Tank Bottom Waters

Rationale: This special condition prohibits the discharge of tank bottom waters from bulk fuel oil or waste oil storage facilities. This prohibition is consistent with the regulation of bulk petroleum handling facilities and is applicable to this facility because large quantities of fuel oil are stored. This special condition does not prohibit the discharge of tank bottom waters from highly refined lubricating oil tanks. Such discharges would be to the LAP (Outfall 004) and should not pose any problem.

g. I.C.7. Groundwater Monitoring

Rationale: State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine impact on State waters. Groundwater monitoring for parameters of concern will indicate whether pond seepage is resulting in violations to the State Water Control Board's Ground Water Standards.

This special condition references a groundwater monitoring program that was approved in 2001. Reference to monitoring around the oil storage facilities was deleted in 2004 because those facilities are now adequately monitored in accordance with the State's Facility and Aboveground Storage Tank (AST) Regulation under file number 4012652. This condition also makes reference to coverage under the Solid Waste program if and when a solid waste permit is issued to supersede the monitoring plan approved by this permit. See rationale in Item 20.h below.

See **Attachment 8** for a complete discussion of groundwater monitoring at the site.

h. I.C.8. Closure Plan for Upper Ash Pond

Rationale: This special condition references the updated closure plan for the Upper Ash Pond approved in 2003 and revised in 2015. EPA issued a Final Rule for the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities on December 19, 2014. The rule established technical requirements for CCR landfills and surface impoundments under Subtitle D of the Resource Conservation and Recovery Act (RCRA). These regulations address the management and disposal of coal ash including stability, groundwater monitoring, and fugitive dust emissions. The federal regulations were adopted into the Virginia Solid Waste Management Regulations and became effective January 27, 2016.

CCR Surface Impoundments have historically been regulated under the VPDES program in Virginia. 9VAC20-81-310 provides the requirements for surface impoundments where closure is not provided for by the VPDES program. The long-term management which may include operational requirements, closure, post-closure, and/or groundwater monitoring of these

impoundments will be transitioned to the solid waste program moving forward in accordance with established solid waste program requirements and requirements under the EPA rule as applicable. Existing groundwater monitoring, corrective action and/or risk assessment plans currently in effect under the VPDES permit will remain in effect until such time that they are superseded by a solid waste permit for closure and/or post-closure in accordance with the Virginia Solid Waste Management Regulations (9VAC20-81). It may be necessary to update the VPDES closure plan to comply with the CCR rule prior to issuing a solid waste permit.

- i. I.C.9. Discharge of Polychlorinated Biphenyl Compounds
Rationale: This special condition implements a prohibition against the discharge of polychlorinated biphenyl compounds contained in the FEGs [40CFR 423.12(b)(2), 40CFR 423.13(a), and 40CFR 423.15(a)(2)].
- j. I.C.10. Low Level PCB Sampling for Internal Outfall 301
Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted. The monitoring was included in accordance with GM09-2001.
- k. I.C.11. Discharge of Debris from Trash Racks
Rationale: This special condition prohibits the return of debris collected on the intake trash racks to the waterway.
- l. I.C.12. Discharges of Uncontaminated River Water
Rationale: This condition identifies sources of uncontaminated river water that the permittee is authorized to discharge directly to the river and not through a permitted outfall. The sources identified in this special condition should be uncontaminated river water which do not have any impact on the receiving stream. The intake screen backwash flows (designated as Outfalls 006-011 in the 2004 permit) were removed from this condition in the 2004 permit as the discharges were incorporated in the Part I.A page to address chlorine use in the system. After relocation of the chlorine injection points, all intake screen backwash discharges now consist of James River water only. Outfalls 006-011 are being removed in this permit reissuance in accordance with the justification in Attachment 6, and the screen backwashes returned to this condition.
- m. I.C.13. Discharge of Fly Ash Transport Water from Units 7 and 8
Rationale: This special condition implements a New Source Performance Standard from the Steam Electric Power Guidelines [40CFR §423.15(a)(7)] prohibiting the discharge of fly ash transport water from Units 7 and 8. This NSPS applied to these units when constructed. (Units 7 and 8 are fueled primarily by natural gas, but can also use distillate fuel oil.)
- n. I.C.14. Licensed Operator Requirement
Rationale: Licensed operators are required by VPDES Permit Regulation 9VAC25-31-200 C and the Code of Virginia § 54.1-2300 et seq., Rules and Regulations for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals (18VAC160-20-10 et seq.).
- o. I.C.15. Compliance Reporting
Rationale: Authorized by VPDES Permit Regulation, 9VAC25-31-190.J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

The QLs established in the permit, except for TRC, are based on actual laboratory capabilities. The QL for TRC is established by GM14-2003, IN-3.
- p. I.C.16. TMDL Reopener
Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean

Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

q. I.C.17. Treatment Works Closure Plan

Rationale: Code of Virginia § 62.1-44.16 of the State Water Control Law supports the requirement to submit and implement a closure plan for a wastewater treatment facility if the treatment facility ceases operations or undergoes new construction or substantial modification.

r. I.C.18. Whole Effluent Toxicity (WET) Program

Rationale: VPDES Permit Regulation, 9VAC25-31-210 and 220.I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. This industrial category of facilities is identified in Agency guidance for inclusion in the toxics monitoring program.

Special Condition C.18 requires acute and chronic WET testing on Outfalls 001, 002, 003, and 005 – Pre-Closure. A chronic limitation and quarterly testing on Outfall 004 – Pre-Closure is required in Part I.A.11 and acute and chronic limitations and monthly testing on Outfalls 101 and 201 are required in Parts I.A.2 and I.A.4, respectively. See **Attachment 9**.

s. I.C.19. Oil Storage Ground Water Monitoring Reopener

Rationale: Reference to bulk oil storage was removed in the 2004 reissuance from the special condition requiring groundwater monitoring because such monitoring is now addressed by the Facility and Aboveground Storage Tank (AST) Regulation, 9VAC25-91-10 et seq. Where potential exists for groundwater pollution and that regulation does not require monitoring, the VPDES permit may require such monitoring under Code of Virginia § 62.1-44.21.

t. I.C.20. Water Quality Criteria Reopener

Rationale: This special condition was added in 2004, in response to public comment specific to the adoption of temperature standards addressing human health. VPDES Permit Regulation, 9VAC25-31-220.D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.

u. I.C.21. CER

Rationale: § 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A Concept Engineering Report (CER) means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations. 9VAC25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

v. I.C.22. Treatment Requirements for the Lower and Upper Ash Pond Closure Discharge

Rationale: Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. This special condition establishes the enhanced treatment requirements for the wastewater associated with the closure of the UAP and LAP. It also establishes monitoring and reporting requirements in accordance with 9VAC25-31-220.I to ensure compliance with the condition is maintained.

w. I.B.23. Outfall 301 – Water Quality Criteria Monitoring

Rationale: This condition was added to the permit to provide effluent characterization for Outfall 301. Worst case concentrations were developed to conduct the reasonable potential analyses for this outfall, but real data is needed to truly characterize the effluent. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's

impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

x. I.C.24. Ash Pond Closure Stormwater Management

Rationale: This condition was added to the permit to address industrial stormwater associated with coal ash pond closures that may not be addressed in the Sector O sector specific requirements of Industrial Stormwater General Permit No. VAR051023. The Sector O requirements do not specifically address closure activities for coal ash ponds or impoundments. Sector O does address "residual treatment, storage, or disposal," and "areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water." This condition is intended to regulate stormwater for closure activities such as CCR transport, loading and unloading, and stockpiling. The State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters.

y. I.C.25. Ash Pond Closure Discharge

Rationale: This condition was added to provide clarification on when the closure activity effluent limitations at Outfalls 101 and 201 become effective during the closure procedures. This condition also defines the reporting requirements prior to and after the initiation of drawdown at the LAP and UAP. The State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters.

z. I.C.26. Notification of Commencement of Discharge

Rationale: This condition is designed to clarify monitoring and reporting requirements before the commencement of discharge from the LVWTS. The State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the impact on State waters.

aa. I.C.27. Cease Discharge Requirements for Outfalls 101 and 201 – UAP and LAP Effluent - Closure

Rationale: This condition is included to ensure that any discharge from Outfalls 101 and 201 during closure activities that exceeds established effluent limitations is ceased as soon as possible once the exceedance(s) is discovered. §62.1-44.15.8a grants the Board authority to "issue special orders to owners who are permitting or causing pollution (as defined by §62.1-44.3) of state waters to cease and desist." §62.1-44.5 prohibits discharges except in compliance with the permit. 9VAC25-31-210 allows on a case-by-case basis any conditions required to assure compliance with applicable requirements of the law, the CWA, and regulations. Because the characterization of the discharge during closure activities cannot be fully known in advance, it is appropriate to include this condition to protect water quality.

ab. I.C.28. Pond Closure Drawdown Rate

Rationale: This condition is included to limit the drawdown rate of the ponds in an effort to reduce the risk of dam stability issues during drawdown. The drawdown limit of 1 foot per day was developed based on the estimated flow rate from the ponds, the drawdown volume, the estimated timeframe for closure, and recommendations from DCR's Dam Safety Program staff.

ac. I.C.29. Process Water Conveyance Investigation

Rationale: Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effects of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. In recognition of the size, complexity and age of the infrastructure at this permitted facility, a comprehensive investigation is warranted to identify potential risks and prevent illicit and unauthorized discharges to state waters.

21. Special Conditions Part I.D

a. I.D.1 Interim §316(b) Best Technology Available (BTA)

Rationale: VPDES Permit Regulation 9VAC25-31-165.C requires existing facilities with cooling water intake structures to meet the requirements under §316(b) of the Clean Water Act (CWA) determined by the department on a case-by-case, best professional judgment basis. DEQ staff

have determined the permitted facility to be subject to the §316(b) requirements because it is a point source that uses or proposes to use one or more cooling water intake structures that withdraws waters of the U.S. for cooling purposes.

Federal regulations at 40CFR §§125.98(b)(5) and (b)(6) mandate that for permits issued before July 14, 2018, for which an alternate schedule has been established for the submission of information required by 40CFR §122.21(r), must include interim BTA requirements in the permit based on best professional judgment on a site-specific basis. This special condition outlines interim BTA practices to minimize impingement and entrainment (I&E) mortality and adverse impacts to aquatic organisms.

The permittee conducted an entrainment characterization study in 2005-2006. The results of the study along with details of the CWIS were published in the *Entrainment Characterization Report, Surry Power Station, June 2005-May 2006* in August 2007 (See **Attachment 7**). The report described the Ristroph traveling screens, low-pressure wash system, and fish return system used to reduced impingement mortality at the CWIS. This report was used to determine interim BTA for the facility.

b. I.D.2 Impingement and Entrainment Control Technology Preventative Maintenance

Rationale: VPDES Permit Regulation 9VAC25-31-190.E requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit.

c. I.D.3 Alternate Schedule for Submittal of 40CFR §122.21(r) Information

Rationale: VPDES Permit Regulation 9VAC25-31-165.C requires existing facilities with cooling water intake structures to meet the requirements under §316(b) of the Clean Water Act (CWA) determined by the department on a case-by-case, best professional judgment (BPJ) basis. Federal regulations at 40CFR §125.95(a)(2) allow for owners or operators of a facility whose permit expires prior to July 14, 2018 to request the Director establish an alternate schedule for the submission of the information required in 40CFR §122.21(r) when making application for this permit. If the owner or operator of the facility demonstrates that it could not develop the required information by the applicable date of submission, DEQ must establish an alternate schedule for the submission of the required information.

DEQ staff received a written request from the permittee, dated April 24, 2015, requesting an alternate schedule (see **Attachment 7**). Upon review of the request, DEQ staff determined the permittee successfully demonstrated the inability to reasonably develop the required information by their reissuance application due date, thereby qualifying for an alternate schedule to be established.

Federal regulations at 40CFR §125.98(a) requires the review, for completeness, of the materials submitted by the applicant under 40CFR §122.21(r) at the time of any application for a subsequent permit. To facilitate a determination of a timely and complete reissuance application in compliance with Part II.M of this permit, the Alternate Schedule for this facility has been established to require submission of the 40CFR §122.21(r) information to the DEQ-Regional Office by no later than 270 days prior to the expiration date of this permit.

d. I.D.4 Monitoring Requirements

Rationale: VPDES Permit Regulation 9VAC25-31-210.A authorizes the Board to establish permit conditions to provide for and assure compliance with all applicable requirements of the law, the CWA and regulations. Federal regulations at 40CFR §125.96(e) requires visual inspections or the employment of remote monitoring devices to be conducted at least weekly during the period any cooling water intake structure is in operation to ensure any technologies operated are maintained and operated to function as designed, including those installed to protect Federally-listed threatened or endangered species or designated critical habitat.

40 CFR §125.96 authorizes DEQ to establish monitoring requirements, and specific protocols, as appropriate. Provisions for inspection waivers, adverse weather conditions, and deficiency discoveries were developed, using as a foundation, comparable provisions found in the VPDES

General Permit for Stormwater Discharges Associated with Industrial Activity, 9VAC 25-151-70, Part I.A.2.e, A.3. and A.6.b.

e. I.D.5 Annual Certification Statement Requirements

Rationale: VPDES Permit Regulation 9VAC25-31-210.A authorizes the Board to establish permit conditions to provide for and assure compliance with all applicable requirements of the law, the CWA and regulations. Federal regulations at 40CFR §125.97(c) requires the permittee to annually submit a certification statement signed by a responsible corporate officer reporting whether there have been substantial modifications to the operation at any unit at the facility that impacts cooling water withdrawals or operation of the cooling water intake structures, or if information contained in the previous year's annual certification remains pertinent.

f. I.D.6 Measures to protect Federally-listed Threatened or Endangered (T&E) species, designated critical habitat, and fragile species or shellfish

Rationale: VPDES Permit Regulation 9VAC25-31-165.C requires existing facilities with cooling water intake structures to meet requirements under section 316(b) of the Clean Water Act determined by the department on a case-by-case, best professional judgment (BPJ) basis. 40CFR §§125.94(a)(1), 125.94(g), 125.96(g), and 125.97(g) authorize DEQ to establish additional control measures, monitoring, and reporting requirements in the permit designed to minimize incidental take, reduce or remove more than minor detrimental effects to Federally-listed threatened or endangered species or designated critical habitat, or avoid jeopardizing Federally-listed species or destroying or adversely modifying designated critical habitat (e.g. prey base).

State Water Control Law §62.1-44.5.A.3 and VPDES Permit Regulation 9VAC25-31-50.A.2 prohibits the alteration of the physical, chemical or biological properties of State waters and making them detrimental to animal or aquatic life, except in compliance with a permit issued by the Board. In addition, VPDES Permit Regulation 9VAC25-31-190.E requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit.

State Water Control Law §62.1-44.21 and VPDES Permit Regulation 9VAC25-31-190.H authorizes the Board to require owners to furnish plans, specifications, and other pertinent information as may be necessary to accomplish the purposes of the State Water Control Law. In addition, federal regulations at 40CFR §125.94(g) and §125.97(e) authorize DEQ to establish additional permit monitoring and reporting requirements. Information provided by the permittee under this special condition may be used as a foundation to address other reporting requirements of 40CFR §125.98(k).

g. I.D.7 Federal Endangered Species Act Compliance

Rationale: State Water Control Law §62.1-44.5.A.3 and VPDES Permit Regulation 9VAC25-31-50.A.2 prohibits the alteration of the physical, chemical or biological properties of State waters and making them detrimental to animal or aquatic life, except in compliance with a permit issued by the Board.

In addition, VPDES Permit Regulation 9VAC25-31-210.A authorizes the Board to establish permit conditions to provide for and assure compliance with all applicable requirements of the law, the CWA and regulations. 40CFR §125.98(j) stipulates that nothing in Subpart J of Part 125 of the Code of Federal Regulations authorizes the take, as defined at 16 U.S.C. 1532(19), of threatened or endangered species of fish or wildlife. Such take is prohibited under the Endangered Species Act unless it is exempted pursuant to 16 U.S.C 1536(o) or permitted pursuant to 16 U.S.C 1539(a). Absent such exemption or permit, any facility must not take threatened or endangered species. 40CFR §125.98(b)(1) requires all NPDES permits for facilities subject to §316(b) of the Clean Water Act to include as a permit condition the specific language of this special condition.

22. Part II, Conditions Applicable to All VPDES Permits

Rationale: The VPDES Permit Regulation at 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

23. Storm water discharges at the Station not directed to Outfall 004 or 005 are addressed by industrial storm water general permit VAR051023.

24. NPDES Permit Rating Work Sheet: Total Score – 600. See **Attachment 10**.

25. Changes to the 2008 Permit Modification:

Permit Cover Page Changes	
Item	Rationale
Introductory paragraph	Updated language to reflect January 27, 2010 VPDES Permit Manual (Guidance Memorandum 14-2003).
Facility Name	Revised from "Chesterfield Power Station" to " <i>Dominion</i> Chesterfield Power Station" to reflect the Facility Name reported on Form 1 of the reissuance application.
City	Deleted because it's not applicable.
River Basin	Removed "(Lower)" from the basin name to reflect guidance from senior Water Planning staff.
River Subbasin	Added "James River (Lower)" to reflect guidance from senior Water Planning staff.
Signatory	Revised from Water Permit Manager to Deputy Regional Director as the permit is a major. This change is consistent with DEQ Policy Statement 2-09.

Effluent Monitoring Changes – Outfall 001					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Total Residual Chlorine (µg/L) (Monthly Avg/Daily Max)	26/38	22/32	No Change		See discussion in Attachment 5.a
Total Phosphorus (Monthly Avg/Daily Max)	2.0 mg/L /NL	None	1/Month	None	Removed per discussion in Attachment 5.h.
Part I.A.1 Changes – Outfall 001					
From	To	Rationale			
I.A.1	I.A.1	No change to introductory narrative.			
I.A.1.a	I.A.1.a	Updated language to remove "by the permittee" to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting.			
I.A.1.a.(1)	I.A.1.a.(1)	No change.			
I.A.1.a.(2)	I.A.1.a.(2)	No change.			
I.A.1.a.(3)	I.A.1.a.(3)	No change.			
I.A.1.a.(4)	I.A.1.a.(4)	No change.			
I.A.1.b	I.A.1.b	No change.			
None	I.A.1.c	Language added in accordance DEQ-PRO QA/QC feedback dated 4/24/2012.			

Effluent Monitoring Changes – Outfall 101 – UAP and LAP Effluent - Closure

Outfall 101 was added to address drawdown and dewatering of the Upper and Lower Ash Ponds. See Item 10 for further discussion.

Effluent Monitoring Changes – Outfall 002

Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Total Residual Chlorine (µg/L) (Monthly Avg/Daily Max)	26/38	22/32	No Change		See discussion in Attachment 5.a
Total Recoverable Copper (µg/L) (Monthly Avg/Daily Max)	None	NL	None	1 per Quarter	See discussion in Attachment 5.a
Total Phosphorus (Monthly Avg/Daily Max)	2.0 mg/L /NL	None	1/Month	None	Removed per discussion in Attachment 5.h.

Part I.A.3 Changes – Outfall 002

From	To	Rationale
I.A.2	I.A.3	No change to introductory narrative.
I.A.2.a	I.A.3.a	Updated language to remove “by the permittee” to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting.
I.A.2.a.(1)	I.A.3.a(1)	No change.
I.A.2.a.(2)	I.A.3.a(2)	No change.
I.A.2.a.(3)	I.A.3.a(3)	No change.
I.A.2.a.(4)	I.A.3.a(4)	No change.
I.A.2.b	I.A.3.b	No change.
None	I.A.3.c	Language added in accordance DEQ-PRO QA/QC feedback dated 4/24/2012.

Effluent Monitoring Changes – Outfall 201 – UAP and LAP Effluent - Closure

Outfall 201 was added to address drawdown and dewatering of the Upper and Lower Ash Ponds. See Item 10 for further discussion.

Effluent Monitoring Changes – Outfall 003					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow (MGD) (Monthly Avg/Daily Min/Daily Max)	NL/NA/NL	NL/NL/NL	No Change		PJ - Monitoring for Daily Minimum Flow added in order to assess compliance with the discharge prohibition on internal outfall 301. See Attachment 5.c for discussion.
Total Phosphorus (Monthly Avg/Daily Max)	2.0 mg/L /NL	None	1/Month	None	Removed per discussion in Attachment 5.h.

Part I.A.5 Changes – Outfall 003		
From	To	Rationale
I.A.3	I.A.5	No change to introductory narrative.
I.A.3.a	I.A.5.a	Updated language to remove “by the permittee” to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting.
I.A.3.a.(1)	I.A.5.a(1)	No change.
I.A.3.a.(2)	I.A.5.a(2)	No change.
I.A.3.a.(3)	I.A.5.a(3)	No change.
I.A.3.a.(4)	I.A.5.a(4)	No change.
I.A.3.b	I.A.5.b	No change.
None	I.A.5.c	Language added in accordance DEQ-PRO QA/QC feedback dated 4/24/2012.

Effluent Monitoring Changes – Internal Outfall 301
Internal outfall 301 was added for the planned construction of the LVWWTS. See Item 10 for further discussion.

Effluent Monitoring Changes – Internal Outfall 302
Internal Outfall 302 was added to address effluent from the FGD WWTP to the LVWWTS. See Item 10 for further discussion.

Effluent Monitoring Changes – Internal Outfall 303
Internal Outfall 303 was added to address effluent from the Metal Cleaning Waste Treatment Basin to the LVWWTS. See Item 10 for further discussion.

Effluent Monitoring Changes – Internal Outfall 304
Internal Outfall 304 was added to address combustion residual leachate from the FFCP Management Facility to the LVWWTS. See Item 10 for further discussion.

Effluent Monitoring Changes – Internal Outfall 305
Outfall 305 was added to address coal pile runoff from the Coal Pile Runoff Metals Treatment System.

Effluent Monitoring Changes – Outfall 004 – Pre-Drawdown					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
TSS (Daily Max)	100 mg/L	88 mg/L	2/Month	2 per Month	Per 40CFR 423.12(b)(9) for coal pile runoff.
Interim - Ammonia-N (mg/L) (Monthly Avg/ Daily Max)	13 mg/L 19 mg/L	No change	1/Week	1 per Week	Converted to an Interim Limit per discussion in Attachment 5.g.
Final - Ammonia-N (mg/L) (Monthly Avg/ Daily Max)	None	0.61 mg/L 0.80 mg/L	None	2 per Month	Water quality based effluent limits. See discussion in Attachment 5.d.
Total Phosphorus (Monthly Avg/ Daily Max)	2.0 mg/L /NL	None	1/Month	None	Removed per discussion in Attachment 5.h.
TPH	NL (Monthly Average)	NL (Daily Max)	1/Year	1 per Year	To be consistent with the Petroleum Contamination General Permit.
Interim – Total Recoverable Thallium (µg/L) (Monthly Avg/ Daily Max)	None	NL	None	2 per Month	Water quality based effluent limitations. See discussion in Attachment 5.d.
Final – Total Recoverable Thallium (µg/L) (Monthly Avg/ Daily Max)	None	0.47/0.47	None	2 per Month	Water quality based effluent limitations. See discussion in Attachment 5.d.
Interim – Total Recoverable Selenium (µg/L) (Monthly Avg/ Daily Max)	None	NL	None	2 per Month	Water quality based effluent limitations. See discussion in Attachment 5.d.
Final – Total Recoverable Selenium (µg/L) (Monthly Avg/ Daily Max)	None	5.9/7.3	None	2 per Month	Water quality based effluent limitations. See discussion in Attachment 5.d.
Part I.A.11 Changes – Outfall 004 – Pre-Drawdown					
From	To	Rationale			
I.A.4	I.A.11				

I.A.4.a	I.A.11.a	Updated language to remove “by the permittee” to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting. Added definitions for 1/Quarter and 1/Year monitoring frequencies for clarity.
I.A.4.a.(1)	I.A.11.a(1)	No change.
I.A.4.a.(2)	I.A.11.a(2)	No change.
None	I.A.11.a(3)	Added to clarify the analytical method to be used for TPH samples.
None	I.A.11.a(4)	Added to reference the applicable compliance schedule.
I.A.4.b	I.A.11.b	No change.
I.A.4.c	I.A.11.c	No change.
None	I.A.11.d	Added to clarify when closure limitations become effective.

Effluent Monitoring Changes – Internal Outfall 401

Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
All Parameters	No change		1/discharge	1 per Week	1/discharge is not a compatible frequency with the compliance database.

Part I.A.12 Changes – Outfall 401

From	To	Rationale
I.A.5	I.A.12	Outfall renamed from 104 to 401. Revised to reflect changes to authorization period.
I.A.5.a	I.A.12.a	Updated language to remove “by the permittee” to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting. “Recoverable” was added to the metals parameters (Total Recoverable...) for clarity.
I.A.5.a.(1)	I.A.12.a(1)	No change.
None	I.A.12.a(2)	Added to clarify use of three significant figures per the federal ELG.
I.A.5.b	I.A.12.b	Removed and replaced with language clarifying internal outfall name changes.

Effluent Monitoring Changes – Internal Outfall 402

Internal Outfall 402 was added to address effluent from the FGD WWTP. See Item 10 for further discussion.

Effluent Monitoring Changes – Outfall 005 – Pre-Closure

Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow	NA	NA	Measured	Calculated	Per owner request as documented in Attachment 12.

Ammonia, as N (mg/L) (Monthly Avg/ Daily Max)	NL	None	1/Week	None	No longer needed to assess the effects of SCR and FGD wastewater on the effluent. See Attachments 5.g & 5.h.
Total Phosphorus (mg/L) (Monthly Avg/ Daily Max)	2.0 /NL	None	1/Week	None	Removed per discussion in Attachment 5.h.
Flow, pH, TSS, and O&G	NA	NA	2/Month	1 per Month	Frequency reduced per owner request as documented in Attachment 12.

Part I.A.12 Changes – Outfall 005 – Pre-Closure

From	To	Rationale
I.A.6	I.A.14	Revised introductory language to address Pre-Drawdown discharge.
I.A.6.a	I.A.14.a	Updated language to remove “by the permittee” to reflect DEQ-PRO QA/QC feedback dated 2/28/2012. Added DMR parameter codes to each pollutant for increased clarity in reporting.
I.A.6.a.(1)	I.A.14.a.(1)	No change.
None	I.A.14.a.(2)	Added to clarify use of three significant figures per the federal ELG
I.A.6.b	I.A.14.b	No change.
I.A.6.c	I.A.14.c	No change.

Part I.A Changes – Outfall 006 though 011

From	To	Rationale
I.A.7	None	Removed outfalls per discussion in Attachment 6.

Part I.B Compliance Schedule

From	To	Rationale
I.C	I.B	Revised to provide details on the compliance schedules for Outfalls 301, 302 and 402, 304, and 004.

Part I.C Special Conditions

From	To	Rationale
I.B.1	I.C.1	Notification Levels: “the discharge” revised to “any discharge,” in part b, in accordance with GM14-2003, IN-3.
I.B.2	I.C.2	Nutrient Reopener: No change.
I.B.3	I.C.3	Materials Handling/Storage: Updated language to reflect GM 14-2003, IN-3.
I.B.4	I.C.4	Discharge of Chlorine in Cooling Water: Revised to reflect the appropriate section of the Federal Effluent Guidelines [40CFR423.13(b)(2)].
I.B.5	I.C.5	Operation and Maintenance Manual Requirement: Updated language in accordance with GM14-2003.
I.B.6	I.C.6	Discharge of Tank Bottom Waters: No change.
I.B.7	I.C.7	Groundwater Monitoring: Updated to reflect the progress with the LAP CAP and the requirement for a metals pond CAP. Language also added to address potential coverage under the Solid Waste program.
I.B.8	I.C.8	Closure Plan for Upper Ash Pond: Language added to address potential coverage under the Solid Waste program.
I.B.9	I.C.9	Discharge of Polychlorinated Biphenyl Compounds: No change

None	I.C.10	<u>Low Level PCB Sampling for Internal Outfall 301:</u> Added in accordance with GM09-2001 because of the PCB management on site.
I.B.10	I.C.11	<u>Discharge of Debris from Trash Racks:</u> No change.
I.B.11	I.C.12	<u>Discharges of Uncontaminated River Water:</u> Added subpart d. to address the deletion of Outfalls 006-011. See Attachment 6 .
I.B.12	I.C.13	<u>Discharge of Fly Ash Transport Water from Units 7 & 8:</u> No change.
I.B.13	I.C.14	<u>Licensed Operator Requirement:</u> Updated language to reflect licensing board's new title.
I.B.14	I.C.15	<u>Compliance Reporting:</u> Updated language in accordance with GM14-2003. Removed QL for TOC and TP. The Agency does not have an established TOC QL and TP was removed from the permit. Updated QLs for total recoverable antimony, total recoverable arsenic, total recoverable cadmium, total recoverable chromium III, dissolved chromium VI, total recoverable copper, total recoverable iron, total recoverable lead, total recoverable mercury, total recoverable nickel, total recoverable selenium, total recoverable silver, and total recoverable zinc to be consistent with actual laboratory capabilities. See Part 20 for additional discussion.
I.B.15	I.C.16	<u>TMDL Reopener:</u> No change.
I.B.16	I.C.17	<u>Treatment Works Closure Plan:</u> Updated language to reflect GM 14-2003.
I.B.17	I.C.18	<u>Whole Effluent Toxicity (WET) Testing Program:</u> Revised in accordance with Attachment 9 .
I.B.18	I.C.19	<u>Oil Storage Groundwater Monitoring Reopener:</u> No change.
I.B.19	None	<u>Basis of Design Report:</u> Condition removed as the condition has already been satisfied.
I.B.20	None	<u>Interim Optimization Plan:</u> Condition removed as the condition has already been satisfied.
I.B.21	None	<u>§316(b) Requirements:</u> Moved to Part I.D
I.B.22	I.C.20	<u>Water Quality Criteria Reopener:</u> added language in accordance with GM14-2003.
I.B.23	I.C.21	<u>CER:</u> Special condition added in accordance with DEQ-PRO staff decision dated 6/29/2010 and GM07-2008 Amendment 2.
None	I.C.22	<u>Treatment Requirements for the Lower and Upper Ash Pond Discharge:</u> See section 20 above.
None	I.C.23	<u>Outfall 301 – Water Quality Criteria Monitoring:</u> Special condition added to detail additional monitoring for Outfall 301. Language is in accordance with GM14-2003.
None	I.C.24	<u>Ash Pond Closure Stormwater Management:</u> Added to address stormwater management during closure of the LAP and UAP.
None	I.C.25	<u>Ash Pond Closure Discharge:</u> Added to clarify point at which closure limitations at Outfalls 101 and 201 are triggered.
None	I.C.26	<u>Notification of Commencement of Discharge:</u> Added in accordance with GM14-2003, IN-3 to address new discharge proposed for the LVWWTs.
None	I.C.27	<u>Cease Discharge Requirements for Outfalls 101 and 201:</u> Added to detail requirements associated with monitoring during closure activities that does not meet the effluent limits.
None	I.C.28	<u>Pond Closure Drawdown Rate:</u> Added to limit the rate of drawdown in an effort to be protective of dam stability during closure activities.
None	I.C.29	<u>Process Water Conveyance Investigation:</u> See section 20 above

Part I. D Changes		
From	To	Rationale
None	Part I.D	<u>§316(b) Phase II Conditions</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.1	<u>Interim §316(b) Best Technology Available (BTA)</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.2	<u>Impingement and Entrainment Control Technology Preventative Maintenance</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.3	<u>Alternate Schedule for Submittal of 40 CFR §122.21(r) Information</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.4	<u>Monitoring Requirements</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.5	<u>Annual Certification Statement Requirements</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.6	<u>Measures to protect Federally-listed Threatened or Endangered (T&E) species, designated critical habitat, and fragile species or shellfish</u> : Added in accordance with §316(b) final rule (August 15, 2014).
None	Part I.D.7	<u>Federal Endangered Species Act Compliance</u> : Added in accordance with §316(b) final rule (August 15, 2014).

Part II Changes:		
From	To	Rationale
Part II	Part II	Updated in accordance with GM14-2003.

26. Variances/Alternate Limits or Conditions: Thermal variance in accordance with Section 316(a) of the Clean Water Act. See **Attachment 7**.

27. Public Notice Information required by 9VAC25-31-280 B:

First Comment period: Publishing Newspaper: *Richmond Times Dispatch*
 Publication Dates: May 1, 2014 and May 8, 2014
 Start Date: May 2, 2014 End Date: June 2, 2014

Second Comment period: Publishing Newspaper: *Richmond Times Dispatch and Style Weekly*
 Publication Dates: June 6, 2016 and June 13, 2016
 Start Date: June 6, 2016 End Date: July 21, 2016

All pertinent information is on file and may be inspected and copied by contacting Brian Wrenn at:

Virginia Department of Environmental Quality (DEQ)
 Piedmont Regional Office
 4949-A Cox Road
 Glen Allen, Virginia 23060-6296
 Telephone Number 804/527-5012
 Facsimile Number 804/527-5106
 Email ChesterfieldPowerStationWaterPermit@deq.virginia.gov

DEQ accepts comments and requests for public hearing by hand delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected

by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for public hearing, and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment or may request copies of the documents from the contact person listed above. This permit includes requirements for cooling water intake structures.

Public Notice Comments: See **Attachment 14** for public comments and DEQ responses to these comments.

28. Additional Comments:

- a. Previous Board Action: A Consent Special Order was issued in October 2003 authorizing operation of Selective Catalytic Reduction (SCR) air control technology. The 2003 Order was terminated when the 2004 permit was reissued. A separate Consent Special Order was issued in 2005 and terminated May 1, 2007. The Order addressed an unauthorized ash discharge through Outfall 004 to Farrar Gut. The Order required ambient stream assessment, remedial action and preventative planning.
- b. Staff Comments:
 - A potential seep was identified during a site inspection on February 10, 2016. Despite saturated soil conditions attributed to recent snowfall, no discharge was observed. The permittee reported that there is no visible indication of a seep during dry conditions. The potential seep is located approximately 160 feet immediately east of the Outfall 004 discharge channel. Per a letter signed March 3, 2016, the permittee was notified of the potential seep and instructed to investigate the potential seep and perform corrective action as necessary. A response letter received May 13, 2016, detailed planned maintenance activities to the southwestern slope of the Lower Ash Pond which are to commence May 23, 2016.
 - On August 15, 2014, EPA signed the final rule to the revised §316(b) of the CWA. §316(b) requires facilities with water intake structures designed to withdraw 2 MGD of surface waters for cooling purposes to minimize impingement and entrainment of aquatic organisms. Any permits to be issued after October 14, 2014 and before July 15, 2018 are required to provide documentation in the permit application demonstrating compliance with the final Best Technology Available (BTA) options described in 40CFR 125.94. However, upon demonstration that the permittee cannot provide this documentation prior to the deadline for a complete application, the permittee can request an alternate schedule for submission of the required documentation [40CFR §122.21(r)]. Once an alternate schedule has been approved, DEQ is required to make an interim BTA determination. On April 29, 2015, the permittee requested an alternate schedule for submission of application documentation required in 40CFR 122.21(r). An alternate schedule is provided in this permit along with interim BTA. In accordance with 40CFR 125.98(h), DEQ submitted a coordination request to the USFWS and NMFS on April 30, 2015 and again to NMFS on July 1, 2015. USFWS provided comments on May 7, 2015. Draft permit documents were submitted to USFWS and NMFS on XX XX, 201X. See **Attachment 16** for further details.
 - On September 30, 2015, EPA signed the final rule for the Steam Electric Power Generating Point Source Category Federal Effluent Guidelines (FEGs) [40CFR 423]. All applicable FEGs for BPT, BAT, and NSPS have been incorporated into this permit. Where water quality-based effluent limits (WQBELs) were more stringent, the WQBELs have replaced the FEGs.
 - Because of Warning Letters issued December 22, 2009, February 26, 2010 and March 1, 2011, the facility is not eligible for reduced monitoring with this reissuance. Furthermore, the monitoring frequencies in the 2008 permit are considered necessary for accurate characterization of the discharges. However, the effluent monitoring frequencies at Outfall 005 for flow, pH, TSS, and oil & grease were reduced from 2 to 1 per Month. The 2009 VPDES application reported that a discharge occurs at the outfall only 2-3 times per year. This was confirmed by DMR data for the outfall. Furthermore, although chronic WET testing is required at the outfall, no chronic tests were conducted during the last permit cycle due to

the fact that discharges from Outfall 005 did not occur for consecutive days. In light of this discharge frequency, it is highly unlikely that 2 sampling events per month could be obtained. Therefore, a monitoring frequency of 1 per Month is appropriate for Outfall 005.

- This facility discharges to a receiving stream section with the special standards “a,” “z,” “EWS-11” and “bb.” The facility does not discharge to shellfish waters, therefore, special condition “a” does not apply. Because the location of outfall 001 is not within the designated boundaries, special standards “z” and “EWS-11” do not apply. Special standard “bb” involves chlorophyll a. Chlorophyll a is adequately addressed through the Nutrient Trading TMDL discussed below (See Part 28).
- Chesterfield Power Station is a significant discharger of nutrients to the Chesapeake Bay. The facility was assigned a WLA in the 2005 rulemaking that is now reflected in the Bay TMDL. A nutrient general permit (VAN040086) was issued January 1, 2012 to this facility to address the nutrient discharges. The permit expires December 31, 2016.
- This facility is subject to the requirements of 9VAC25-151, General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity. The facility currently holds a General VPDES Permit (VAR051023) which expires on June 30, 2019.
- 2015 annual fees were deposited October 5, 2015.
- The permittee is not currently a participant in the Virginia Environmental Excellence Program.
- The facility has been registered in eDMR since October 2, 2012.
- The permit expiration date is set as the last day of the month just shy of a five-year permit duration. This change is in accordance with a regional initiative (Staff Decisions: 10-25-11) to adjust permit cycles to include complete calendar months. The initiative will facilitate smoother monitoring transitions between cycles.
- The proposed limitations will maintain Water Quality Standards.
- The 2008 modified permit was administratively continued upon the permit expiration. The permit is being reissued subsequent to expiration due to administrative delays.
- Outfall 104 has been renamed to Outfall 401 for consistency with appropriate DEQ outfall naming conventions.
- Based on DEQ requirements and in accordance with the facility's Corrective Action Plan (CAP) for PC #94-1599, Dominion is planning to install an oil recovery system at the CPS. Activities associated with this discharge are permitted separately under the Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests GP (VAG83). The registration statement for this GP was submitted on March 20, 2014 and VAG830471 was issued on March 27, 2014.
- After close of the public comment period, DEQ has 90 days to render a decision on the permit reissuance application. The public comment period for this reissuance expired on June 2, 2014. The 90-day period ended August 31, 2014. However, DEQ and Virginia Electric and Power Company mutually agreed to an extension ending October 31, 2014 and again on an extension ending January 15, 2015. Subsequently, Dominion informed DEQ of major modifications that would occur at the facility in response to the CCR rule (final rule signed April 17, 2015). DEQ decided to merge the reissuance and the modifications into one permitting action for efficiency purposes.
- On January 29, 2016, DEQ notified all riparian landowners within 0.25 miles upstream and 0.25 miles downstream of the facility of the receipt of a VPDES permit application for major modifications at the facility.

c. **EPA Comments:**

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d. T&E Coordination

- The DEQ has coordinated with the DCR, DGIF, and USFWS in accordance with the Memorandum of Understanding signed May 8, 2007. See **Attachment 16** for a record of correspondence, including comments, between the agencies.

e. VDH-ODW Comments:

- The application was sent to VDH-ODW on July 31, 2009. A response received August 10, 2009 indicated that there are no public water supply intakes within 15 miles of the discharge/activity. The raw water intake for the Virginia American-Hopewell water treatment plant is located on the Appomattox River, approximately 20 miles downstream of the discharge point for the Dominion Chesterfield Power Station. VDH waived the right to review and comment on the draft permit.

f. **Owner Comments:**

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g. **Planning Conformance Statement:**

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h. Public Notice Notifications:

- The Chesterfield County Administrator, Chairman of the Chesterfield County Board of Supervisors, and Executive Director of the Richmond Regional Planning District Commission were notified of the public comment period on **TBD** in accordance with the Code of Virginia, §62.1-44.15:01.

29. 303(d) Listed Segments (TMDL):

30. Summary of attachments to this Fact Sheet:

Attachment 1	Location and Site Maps
Attachment 2	Ambient Stream Characterization
Attachment 3	Water Flow Diagram and Narrative, List of Chemicals Present, Map of Storage, LVWWTS Compliance and Design Narrative, and LAP/UAP Decanting/Dewatering Process
Attachment 4	Effluent Characterization
Attachment 5	Effluent Limitation Development
Attachment 6	Removal of Outfalls 006-011
Attachment 7	Discussion of 316(a) and 316(b)
Attachment 8	Evaluation of Ground Water Monitoring Data
Attachment 9	Discussion of WET Testing
Attachment 10	NPDES Permit Rating Work Sheet
Attachment 11	Site Visit Memo
Attachment 12	Proposed Conceptual Engineering Report Permit Language
Attachment 13	Draft Owner Comments and DEQ Responses
Attachment 14	EPA Comments, Dominion and DEQ Responses
Attachment 15	Public Comments and DEQ Responses
Attachment 16	Other Agency Comments